

10/658, 417

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PASSWORD:

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STN Express with Discover!  
NEWS 4 OCT 28 KOREAPAT now available on STN  
NEWS 5 NOV 30 PHAR reloaded with additional data  
NEWS 6 DEC 01 LISA now available on STN  
NEWS 7 DEC 09 12 databases to be removed from STN on December 31, 2004  
NEWS 8 DEC 15 MEDLINE update schedule for December 2004  
NEWS 9 DEC 17 ELCOM reloaded; updating to resume; current-awareness  
alerts (SDIs) affected  
NEWS 10 DEC 17 COMPUAB reloaded; updating to resume; current-awareness  
alerts (SDIs) affected  
NEWS 11 DEC 17 SOLIDSTATE reloaded; updating to resume; current-awareness  
alerts (SDIs) affected  
NEWS 12 DEC 17 CERAB reloaded; updating to resume; current-awareness  
alerts (SDIs) affected  
NEWS 13 DEC 17 THREE NEW FIELDS ADDED TO IFIPAT/IFIUDE/IFICDB  
NEWS 14 DEC 30 EPFULL: New patent full text database to be available on STN  
NEWS 15 DEC 30 CAPLUS - PATENT COVERAGE EXPANDED  
NEWS 16 JAN 03 No connect-hour charges in EPFULL during January and  
February 2005  
NEWS 17 JAN 26 CA/CAPLUS - Expanded patent coverage to include the Russian  
Agency for Patents and Trademarks (ROSPATENT)  
NEWS 18 FEB 10 STN Patent Forums to be held in March 2005  
  
NEWS EXPRESS JANUARY 10 CURRENT WINDOWS VERSION IS V7.01a, CURRENT  
MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),  
AND CURRENT DISCOVER FILE IS DATED 10 JANUARY 2005  
  
NEWS HOURS STN Operating Hours Plus Help Desk Availability  
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NEWS PHONE Direct Dial and Telecommunication Network Access to STN  
NEWS WWW CAS World Wide Web Site (general information)

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\* \* \* \* \* STN Columbus \* \* \* \* \*

FILE 'HOME' ENTERED AT 17:23:10 ON 14 FEB 2005

=> fil reg

COST IN U.S. DOLLARS

SINCE FILE

ENTRY

TOTAL

SESSION

FULL ESTIMATED COST

0.21

0.21

FILE 'REGISTRY' ENTERED AT 17:23:23 ON 14 FEB 2005

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STRUCTURE FILE UPDATES: 13 FEB 2005 HIGHEST RN 830317-64-1

DICTIONARY FILE UPDATES: 13 FEB 2005 HIGHEST RN 830317-64-1

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

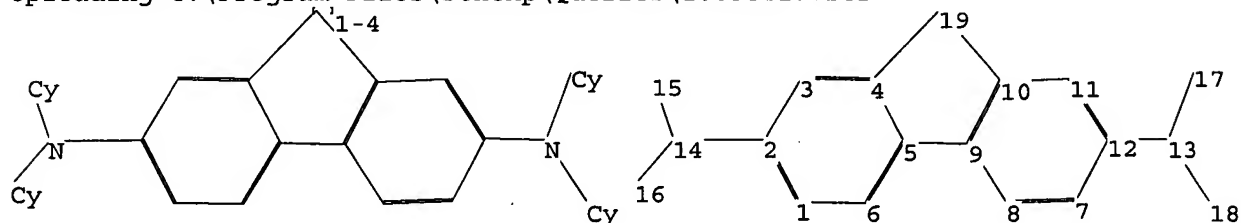
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:

<http://www.cas.org/ONLINE/DBSS/registryss.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10658417.str



chain nodes :

13 14 15 16 17 18

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 19

chain bonds :

2-14 12-13 13-17 13-18 14-15 14-16

ring bonds :

1-2 1-6 2-3 3-4 4-5 4-19 5-6 5-9 7-8 7-12 8-9 9-10 10-11 10-19 11-12

exact/norm bonds :

2-14 4-19 5-9 10-19 12-13 13-17 13-18 14-15 14-16

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

Match level :

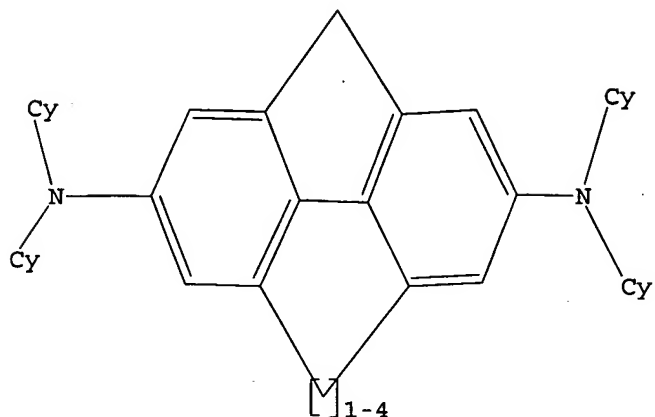
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom

11:Atom 12:Atom 13:CLASS 14:CLASS 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom

L1 STRUCTURE UPLOADED

=> d query

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 17:23:44 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED - 5107 TO ITERATE

19.6% PROCESSED 1000 ITERATIONS  
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)  
SEARCH TIME: 00.00.01

0 ANSWERS

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*  
PROJECTED ITERATIONS: 97855 TO 106425  
PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1.

=> s l1 full

FULL SEARCH INITIATED 17:23:49 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED - 103114 TO ITERATE

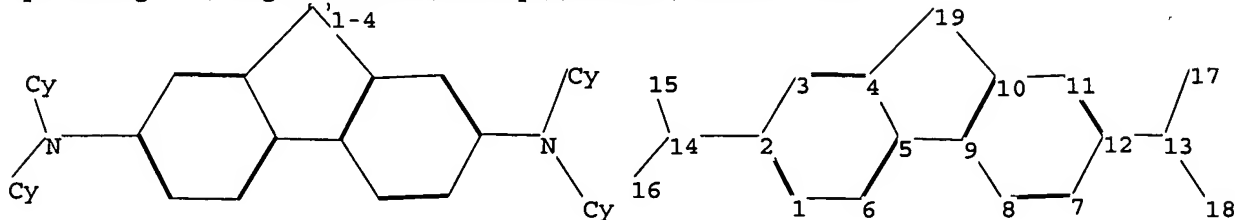
100.0% PROCESSED 103114 ITERATIONS  
SEARCH TIME: 00.00.03

0 ANSWERS

L3 0 SEA SSS FUL L1

=>

Uploading C:\Program Files\Stnexp\Queries\10658417.str



chain nodes :

13 14 15 16 17 18  
 ring nodes :  
 1 2 3 4 5 6 7 8 9 10 11 12 19  
 chain bonds :  
 2-14 12-13 13-17 13-18 14-15 14-16  
 ring bonds :  
 1-2 1-6 2-3 3-4 4-5 4-19 5-6 5-9 7-8 7-12 8-9 9-10 10-11 10-19 11-12  
 exact/norm bonds :  
 2-14 4-19 5-9 10-19 12-13 13-17 13-18 14-15 14-16  
 normalized bonds :  
 1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

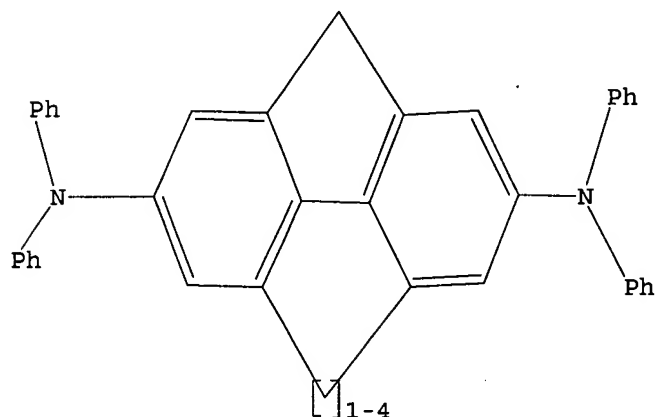
Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom  
 11:Atom 12:Atom 13:CLASS 14:CLASS 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom

L4 STRUCTURE UPLOADED

=> d query

L4 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l4

SAMPLE SEARCH INITIATED 17:24:35 FILE 'REGISTRY'  
 SAMPLE SCREEN SEARCH COMPLETED - 211 TO ITERATE

100.0% PROCESSED 211 ITERATIONS  
 SEARCH TIME: 00.00.01

0 ANSWERS

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
 BATCH \*\*COMPLETE\*\*  
 PROJECTED ITERATIONS: 3349 TO 5091  
 PROJECTED ANSWERS: 0 TO 0

L5 0 SEA SSS SAM L4

=> s l4 full

FULL SEARCH INITIATED 17:24:38 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 3761 TO ITERATE

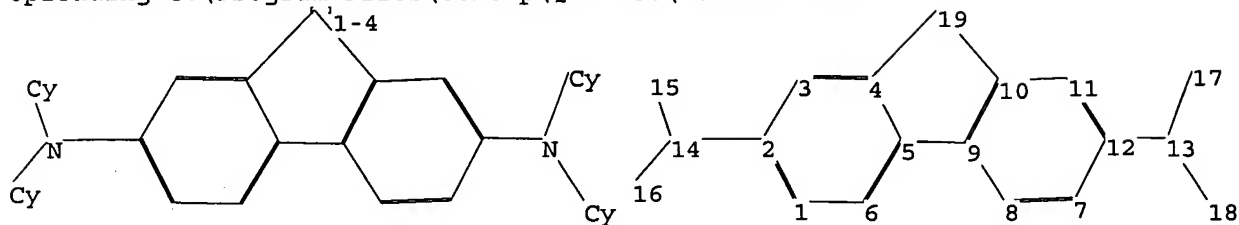
100.0% PROCESSED 3761 ITERATIONS  
SEARCH TIME: 00.00.01

0 ANSWERS

L6 0 SEA SSS FUL L4

=>

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chain nodes :

13 14 15 16 17 18

ring nodes :

1 2 3 4 5 6 7 8 9 10 11 12 19

chain bonds :

2-14 12-13 13-17 13-18 14-15 14-16

ring bonds :

1-2 1-6 2-3 3-4 4-5 4-19 5-6 5-9 7-8 7-12 8-9 9-10 10-11 10-19 11-12

exact/norm bonds :

2-14 4-19 5-9 10-19 12-13 13-17 13-18 14-15 14-16

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

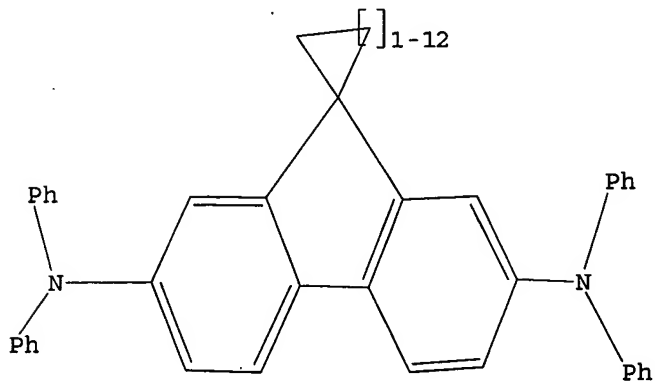
Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom  
11:Atom 12:Atom 13:CLASS 14:CLASS 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom

L7 STRUCTURE UPLOADED

=> d query

L7 STR



Structure attributes must be viewed using STN Express query preparation.

=> s 17  
SAMPLE SEARCH INITIATED 17:28:15 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED - 12 TO ITERATE

100.0% PROCESSED 12 ITERATIONS 0 ANSWERS  
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*  
PROJECTED ITERATIONS: 33 TO 447  
PROJECTED ANSWERS: 0 TO 0

L8 0 SEA SSS SAM L7

=> s 17 full  
FULL SEARCH INITIATED 17:28:18 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED - 174 TO ITERATE

100.0% PROCESSED 174 ITERATIONS 19 ANSWERS  
SEARCH TIME: 00.00.01

L9 19 SEA SSS FUL L7

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	486.14	486.35

FILE 'CAPLUS' ENTERED AT 17:28:22 ON 14 FEB 2005  
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FILE COVERS 1907 - 14 Feb 2005 VOL 142 ISS 8  
FILE LAST UPDATED: 13 Feb 2005 (20050213/ED)

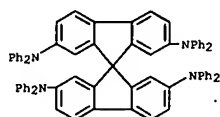
This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s 19  
L10 44 L9  
=> d l10 1-44 abs ibib hitstr

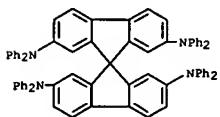
L10 ANSWER 1 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The invention relates to a simple and economical method to manufacture an organic electroluminescent display without using shadow masks to achieve improved service life, light efficiency, and low energy consumption.  
 ACCESSION NUMBER: 2005-70337 CAPLUS  
 DOCUMENT NUMBER: 142:144366  
 TITLE: Display based on organic light-emitting diode (OLED) and procedure for its production  
 INVENTOR(S): Humbs, Werner  
 PATENT ASSIGNEE(S): Samsung SDI Co., Ltd., S. Korea  
 SOURCE: Ger. Offen., 12 pp.  
 CODEN: GWQXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10331109	A1	20050127	DE 2003-10331109	20030704
PRIORITY APPLN. INFO.:			DE 2003-10331109	20030704

IT 189363-47-1, 2,2',7,7'-Tetrakis(diphenylamino)-9,9'-spirobifluorene  
 RL: DEV (Device component use); USES (Uses)  
 (display based on organic light-emitting diode (OLED) and procedure for its production)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



L10 ANSWER 3 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The authors demonstrate high-efficiency organic light-emitting diodes by incorporating a double-emission layer (D-EML) into p-i-n-type cell architecture. The D-EML is comprised of two layers with ambipolar transport characteristics, both doped with the green phosphorescent dye tris(phenylpyridine)iridium. The D-EML system of two bipolar layers leads to an expansion of the exciton generation region. Due to its self-balancing character, accumulation of charge carriers at the outer interfaces is avoided. Thus, a power efficiency of approx. 77 lm/W and an external quantum efficiency of 19.3% are achieved at 100 cd/m<sup>2</sup> with an operating voltage of only 2.65 V. More importantly, the efficiency decays only weakly with increasing brightness, and a power efficiency of 50 lm/W is still obtained even at 4000 cd/m<sup>2</sup>.  
 ACCESSION NUMBER: 2004:913285 CAPLUS  
 DOCUMENT NUMBER: 142:122666  
 TITLE: High-efficiency and low-voltage p-i-n electrophosphorescent organic light-emitting diodes with double-emission layers  
 AUTHOR(S): He, Gufeng; Pfeiffer, Martin; Leo, Karl; Hofmann, Michael; Birnstock, Jan; Pudlich, Robert; Salbeck, Josef  
 CORPORATE SOURCE: Institut fur Angewandte Photophysik, Technische Universitat Dresden, Dresden, D-01062, Germany  
 SOURCE: Applied Physics Letters (2004), 85(17), 3911-3913  
 CODEN: APPLAB; ISSN: 0003-6951  
 PUBLISHER: American Institute of Physics  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 189363-47-1  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (high-efficiency and low-voltage p-i-n electrophosphorescent organic light-emitting diodes with double-emission layers)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)

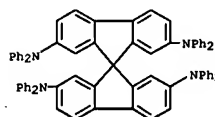


REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

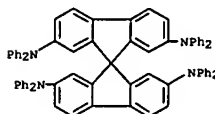
L10 ANSWER 2 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The title transistors are prepared with a 1st contact, a 1st organic semiconductor layer, a comb-shaped or meshed 2nd contact, a 2nd organic semiconductor layer, and a 3rd contact, formed successively on a substrate, wherein a charge injection layer and/or charge transport layer is provided between the 1st contact and the 1st organic semiconductor layer.  
 The charge injection layer is made of an organic semiconductor material capable to inject charges such as m-MTDATA, CuPC, PEDOT, or PSS. Charge transport layer is made of an organic semiconductor material capable to transport charges such as α-NPD, TPD, or Spiro-TAD.  
 ACCESSION NUMBER: 2004:1019096 CAPLUS  
 DOCUMENT NUMBER: 141:430739  
 TITLE: Vertical organic transistors for increased electric current density and electron mobility  
 INVENTOR(S): Tachi, Hiroyuki  
 PATENT ASSIGNEE(S): Ricoh Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.  
 CODEN: JIOKAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004335557	A2	20041125	JP 2003-125877	20030430
PRIORITY APPLN. INFO.:			JP 2003-125877	20030430

IT 189363-47-1  
 RL: PRP (Properties)  
 (charge transfer film; vertical organic transistors for increased elec. c.d. and electron mobility)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



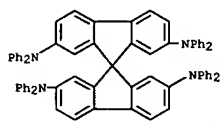
L10 ANSWER 4 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB A phenomenon in which the electroluminescence from an organic light-emitting diode is suppressed by the absorption of visible light is reported. This at-least partially reversible degradation has a recovery time measured in days at a temperature of 20 °C. The absorbed light affects both the I-V characteristics of the device and the electroluminescent quantum efficiency. The degradation is first order in exposure intensity and has been observed in red, green, and blue devices with exposure to as little as 1 W/cm<sup>2</sup> of green laser light.  
 ACCESSION NUMBER: 2004:793788 CAPLUS  
 DOCUMENT NUMBER: 142:29555  
 TITLE: Reversible photodegradation of organic light-emitting diodes  
 AUTHOR(S): Kobrin, P.; Fisher, R.; Gurrola, A.  
 CORPORATE SOURCE: Rockwell Scientific Company, Thousand Oaks, CA, 91360, USA  
 SOURCE: Applied Physics Letters (2004), 85(12), 2385-2387  
 CODEN: APPLAB; ISSN: 0003-6951  
 PUBLISHER: American Institute of Physics  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 189363-47-1  
 RL: DEV (Device component use); USES (Uses)  
 (hole-transporting layer; reversible photodegradn. of organic light-emitting diodes employing)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 5 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Organic light-emitting diodes with ferromagnetic contacts are fabricated, and their emission intensity is studied at room temperature for parallel and antiparallel magnetization configuration of anode and cathode. Sweeping the magnetic field applied parallel to the electrode allows the magnetization of the two electrodes to be switched independently. The electroluminescence intensity for the antiparallel magnetic configuration is found to be enhanced as compared to the parallel one. We show that this increase is not evidence of spin injection but is a consequence of the magnetic-field dependence of the electroluminescence intensity combined with magnetic stray fields from the electrodes.

ACCESSION NUMBER: 2004:728910 CAPLUS  
 DOCUMENT NUMBER: 141:385789  
 TITLE: Hysteretic electroluminescence in organic light-emitting diodes for spin injection  
 AUTHOR(S): Salis, G.; Alvarado, S. F.; Tschudy, M.;  
 Brunswiler, T.; Allenspach, R.  
 CORPORATE SOURCE: Zurich Research Laboratory, IBM Research,  
 Rueschlikon, 8803, Switz.  
 SOURCE: Physical Review B: Condensed Matter and Materials  
 Physics (2004), 70(8), 085203/1-085203/6  
 CODEN: PRBMDO; ISSN: 0163-1829  
 PUBLISHER: American Physical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 189363-47-1, 2,2',7,7'-Tetrakis(diphenylamino)-9,9'-  
 spirobifluorene  
 RL: DEV (Device component use); USES (Uses)  
 (hole transporting material; hysteretic electroluminescence in organic  
 light-emitting diodes with ferromagnetic contacts for spin injection)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-  
 octaphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

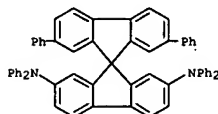
L10 ANSWER 6 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The compns. contain (A) compds. having peaks at 475-600 nm in fluorescent spectra of their solid films and (B) compds. showing the sum of areas (intensities)  $\leq 20\%$  at  $\leq 500$  nm and  $\geq 600$  nm, or at  $\geq 500$  nm based on total areas (intensities) at 400-800 nm in fluorescent spectrum of solid films comprising A and B. Organic electroluminescent devices having emitter layers containing the compns. containing 1:0.1 perylene derivative and diketopyrrolopyrrole derivative showed high luminescence intensity and good durability in repeated use.

ACCESSION NUMBER: 2004:587037 CAPLUS  
 DOCUMENT NUMBER: 141:131068  
 TITLE: Electroluminescent compositions, and their organic electroluminescent devices emitting light from green to yellow  
 INVENTOR(S): Onikubo, Shunichi; Yauchi, Hiroyuki; Yagi, Tamao;  
 Kaneko, Tetsuya; Tanaka, Hiroaki; Takada, Yasuyuki  
 PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 67 pp.  
 CODEN: JYOQAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004206893	A2	20040722	JP 2002-371262	20021224

PRIORITY APPLN. INFO.: JP 2002-371262 20021224

IT 724789-36-0  
 RL: DEV (Device component use); MOA (Modifier or additive use); TEM  
 (Technical or engineered material use); USES (Uses)  
 (dopant; electroluminescent compns. for organic electroluminescent  
 devices showing high luminescence intensity and durability in repeated use)  
 RN 724789-36-0 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N',2',7'-hexaphenyl- (9CI)  
 (CA INDEX NAME)



L10 ANSWER 7 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Electroluminescent devices are described which comprise a first electrode, a layer of a first electroluminescent metal complex or organo metallic complex, a layer of a second metal complex or organo metallic complex and a second electrode and in which the band gap of the second electroluminescent metal complex or organo metallic complex is larger than the band gap of the first electroluminescent metal complex or organo metallic complex.

ACCESSION NUMBER: 2004:569985 CAPLUS  
 DOCUMENT NUMBER: 141:130990  
 TITLE: Electroluminescent materials based on metal complexes or organometallic complexes and devices employing the electroluminescent materials  
 INVENTOR(S): Kathirgamanathan, Poopathy; Kandappu, Vijendra;  
 Ganeshamurugan, Subramaniam; Paramaswara, Gnanamoly  
 PATENT ASSIGNEE(S): Elam-T Limited, UK  
 SOURCE: PCT Int. Appl., 59 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

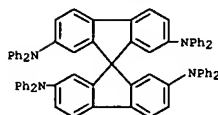
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004058912	A2	20040715	WO 2003-GB5663	20031223
WO 2004058912	A3	20041229		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: GB 2002-30074 A 20021224  
 GB 2002-30077 A 20021224

IT 189363-47-1D, derivs., metal complexes  
 RL: DEV (Device component use); USES (Uses)  
 (electroluminescent materials based on metal complexes or organometallic complexes and devices employing electroluminescent materials)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-  
 octaphenyl- (9CI) (CA INDEX NAME)

L10 ANSWER 7 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)





L10 ANSWER 8 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN

AB Organic electroluminescent devices are described in which the emitting layer

consists of a mixture of 2:1 hole-transporting material and 2:1 emitting material in a weight ratio (hole-transporting material:emitting material) of 1:99 to 99:1 and that 2:1 of the substances contains 2:1 spiro-9,9'-bifluorene unit. Spiro-9,9'-bifluorene derivs. suitable for use in electroluminescent devices are also described.

ACCESSION NUMBER: 2004:569984 CAPLUS

DOCUMENT NUMBER: 141:131054

TITLE: Organic electroluminescent elements and spirobifluorene derivatives useful in them  
Vestweber, Horst; Gerhard, Anja; Stoessel, Philipp; Spreitzer, Robert

PATENT ASSIGNEE(S): Covion Organic Semiconductors GmbH, Germany  
SOURCE: PCT Int. Appl., 30 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004058911	A2	20040715	WO 2003-EP13927	20031209
W: CN, JP, KR, US RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
PRIORITY APPL. INFO.: DE 2002-10261545 A 20021223				

OTHER SOURCE(S): MARPAT 141:131054

IT 189363-47-1

RL: DEV (Device component use); USES (Uses)

(organic electroluminescent elements with emitting layers formed from

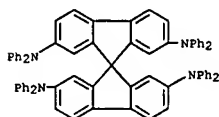
hole transporting-emitting material mixts. and spirobifluorene derivs. useful in them)

RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,

N,N,N',N',N'',N'',N''',N''',N''''

octaphenyl- (9CI) (CA INDEX NAME)



L10 ANSWER 9 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN (Continued)

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GN, GQ, GW, HL, HR, NE, SN, TD,

TG

PRIORITY APPL. INFO.:

GB 2002-28335 A 20021205

OTHER SOURCE(S): MARPAT 141:61840

IT 189363-47-1D, derivs., metal complexes

RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

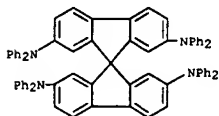
(electroluminescent materials and devices based on metal complexes)

RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,

N,N,N',N',N'',N'',N''',N''',N''''

octaphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT:

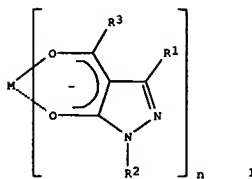
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THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L10 ANSWER 9 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN

GI



AB Electroluminescent compds. are described by formula (I) where M is a metal

other than Al; n is the valency of M; R1, R2 and R3 which may be the same or different are selected from hydrogen, hydrocarbyl groups, substituted and unsubstituted aliphatic groups, substituted and unsubstituted

aromatic, heterocyclic and polycyclic ring structures, fluorocarbons such as trifluoromethyl groups, halogens such as fluorine or thiophenyl groups or nitrile; R1, and R3 can also be form ring structures and R1, R2 and R3

can be copolymerizable with a monomer, e.g. styrene. Electroluminescent device comprising the compound of formula (I) in the luminescent layer are

also discussed. Thus, metal complex of 1-phenyl-3-methyl-4-trimethylacetyl-pyrazol-5-one were prepared and characterized.

ACCESSION NUMBER: 2004:493812 CAPLUS

DOCUMENT NUMBER: 141:61840

TITLE: Electroluminescent materials and devices based on metal complexes of

1-phenyl-3-methyl-4-trimethylacetyl-

pyrazol-5-one

INVENTOR(S): Kathirgamanathan, Poopathy; Surendrakumar, Sivagnanasundaram; Gemmell, Patrick; Ganeshamurugan, Subramaniam; Kumaravel, Muttulingham; Partheepan, Arumugam; Suresh, Sutheralingam; Selvaranjan, Selvadurai

PATENT ASSIGNEE(S): Elam-T Limited, UK

SOURCE: PCT Int. Appl., 39 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004050793	A1	20040617	WO 2003-GB5303	20031205
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,				

L10 ANSWER 10 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN

AB Green phosphorescent organic light-emitting devices (OLEDs) employing tris(2-phenylpyridine) Ir doped into a wide energy gap hole transport

host were studied. N,N,N',N'-tetrakis(4-methoxyphenyl)-benzidine doped with 2,3,5,6-tetrafluoro-7,7,8,8-tetracyanoquinodimethane is used as a hole injection and transport layer, 4,7-diphenyl-1,10-phenanthroline and Cs

are coevaporated as a n-doped electron transport layer, and an intrinsic emission layer is sandwiched between these 2 doped layer. Such a p-i-n device features efficient carrier injection from both contacts into the doped transport layers and low ohmic losses in these highly conductive layers. Thus, low operating voltages are obtained compared to conventional undoped OLEDs. By modifying the device structure, the authors optimized the carrier balance in the emission layer and at its interfaces. For the optimized device, the maximum power efficiency is 53 lm/W, and a luminance of 1000 cd/m2 is reached at 3.1 V with a power efficiency of 45 lm/W.

ACCESSION NUMBER: 2004:380872 CAPLUS

DOCUMENT NUMBER: 141:113740

TITLE: Very high-efficiency and low voltage phosphorescent organic light-emitting diodes based on a p-i-n junction

AUTHOR(S): He, Gufeng; Schneider, Oliver; Qin, Dashan; Zhou, Xiang; Pfeiffer, Martin; Leo, Karl

CORPORATE SOURCE: Institut fuer Angewandte Photophysik, Technische

Universitaet Dresden, Dresden, D-01062, Germany

SOURCE: Journal of Applied Physics (2004), 95(10), 5773-5777

CODEN: JAPIAU; ISSN: 0021-8979

PUBLISHER: American Institute of Physics

DOCUMENT TYPE: Journal

LANGUAGE: English

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS

RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

L10 ANSWER 11 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Organic light-emitting devices which comprise a substrate; an anode and a cathode disposed over the substrate; a luminescent layer disposed between the anode and the cathode are described in which the luminescent layer includes a host and 21 dopant; the host including a solid organic material comprising a mixture of 22 components including a first component that is an organic compound capable of transporting either electrons and/or holes and of forming both monomer state and an aggregate state and a second component of that is an organic compound that upon mixing with the first host component is capable of forming a continuous and substantially pin-hole-free layer, while the dopant of is selected to produce light from the light-emitting device. The first component is capable of forming an aggregate state either in the ground electronic state or in an excited electronic state that results in a different absorption or emission spectrum or both relative to the absorption or emission spectrum or both of the monomer state, resp., or of forming an aggregate state whose presence results in a quantum yield of luminescence of the monomer state being different relative to the quantum yield of luminescence of the monomer state in the absence of the aggregate state. The aggregate state may be crystalline

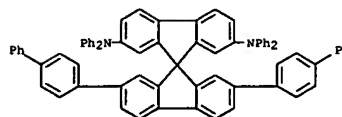
ACCESSION NUMBER: 2004:331637 CAPLUS  
 DOCUMENT NUMBER: 140:365374  
 TITLE: Organic light-emitting diode devices with improved operational stability  
 INVENTOR(S): Jarikov, Viktor V.  
 PATENT ASSIGNEE(S): Eastman Kodak Company, USA  
 SOURCE: U.S. Pat. Appl. Publ., 108 pp., Cont.-in-part of U.S. Ser. No. 131,801, abandoned.  
 CODEM: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 2  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004076853	A1	20040422	US 2003-634324	20030805
JP 2003347058	A2	20031205	JP 2003-118497	20030423
CN 1453886	A	20031105	CN 2003-124026	20030424

PRIORITY APPLN. INFO.: US 2002-131801 B2 20020424

OTHER SOURCE(S): MARPAT 140:365374  
 IT 497157-27-4  
 RL: DEV (Device component use); USES (Uses)  
 (organic light-emitting diode devices using luminescent mixts.)  
 497157-27-4 CAPLUS  
 RN 9,9'-Spirobi[9H-fluorene]-2,7'-diamine, 2',7'-bis([1,1'-biphenyl]-4-yl)-  
 CN N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)

L10 ANSWER 11 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

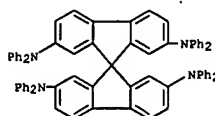


L10 ANSWER 12 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The authors report on the fabrication of organic phototransistors based on the spiro-conjugated mol.  
 2,7-bis-(N,N'-diphenylamino)-2',7'-bis(biphenyl-4-yl)-9,9'-spirobifluorene. Intramol. charge transfer increases charge carrier d., providing the amplification effect. The sensitivity is better than 1 A/W for UV light at 370 nm, making the device interesting for sensor applications.

ACCESSION NUMBER: 2004:261559 CAPLUS  
 DOCUMENT NUMBER: 141:15266  
 TITLE: Organic phototransistor based on intramolecular charge transfer in a bifunctional spiro compound  
 AUTHOR(S): Saragi, Tobat P. I.; Pudzich, Robert; Fuhrmann, Thomas; Salbeck, Josef  
 CORPORATE SOURCE: Department of Science and Center for Nanostructure Science and Technology, Macromolecular Chemistry and Molecular Materials, University of Kassel, Kassel, D 34109, Germany  
 SOURCE: Applied Physics Letters (2004), 84(13), 2334-2336  
 CODEN: APPLAB; ISSN: 0003-6951  
 PUBLISHER: American Institute of Physics  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 13 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The authors present a comparison of different mol. glasses based on the spiro-concept with respect to their photoluminescence properties. The absorption and emission spectra as well as the photoluminescence quantum yields in solution were characterized. For thin amorphous films, prepared by vacuum vapor deposition, the authors examined amplified spontaneous emission (ASE) by optical pumping with picosecond pulses at 337 nm. Efficient ASE emission with thresholds of down to 1 µJ/cm2 was observed

ACCESSION NUMBER: 2003:861938 CAPLUS  
 DOCUMENT NUMBER: 141:196735  
 TITLE: Highly efficient light emitters based on the spiro concept  
 AUTHOR(S): Spehr, Till; Pudzich, Robert; Fuhrmann, Thomas; Salbeck, Josef  
 CORPORATE SOURCE: Department of Science and Center for Nanostructure Science and Technology (CINSA), Macromolecular Chemistry and Molecular Materials, University of Kassel, Kassel, D-34109, Germany  
 SOURCE: Organic Electronics (2003), 4(2-3), 61-69  
 CODEN: OERLAW; ISSN: 1566-1199  
 PUBLISHER: Elsevier Science B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 189363-47-1  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)  
 (highly efficient light emitters based on spiro concept and their optical properties)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N'-octaphenyl- (9CI) (CA INDEX NAME)

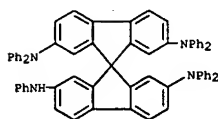


REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 14 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN  
 AB The invention refers to an organic electroluminescent materials suitable  
 for spin coating, comprising a calixarene or calixresorciarene derivative  
 with an organic luminescent group and/or an organic charge transport group, such  
 as 4-[(1,2,2-diphenylvinyl)-biphenyl-2-phenylvinyl]phenyl.  
 ACCESSION NUMBER: 2003:472573 CAPIUS  
 DOCUMENT NUMBER: 139:60162  
 TITLE: Organic electroluminescent material using calixarene  
 or calixresorciarene derivative  
 INVENTOR(S): Momoda, Junji; Kawabata, Yuichiro; Otani, Toshiaki  
 PATENT ASSIGNEE(S): Tokuyama Corporation, Japan  
 SOURCE: PCT Int. Appl., 140 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003050201	A1	20030619	WO 2002-JP12821	20021206
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRIORITY APPL. INFO.:			JP 2001-378448	A 20011212
			JP 2002-120827	A 20020423
			JP 2002-208112	A 20020717

OTHER SOURCE(S): MURPAT 139:60162  
 IT 546634-30-4  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (organic electroluminescent material using calixarene or calixresorciarene derivative)  
 RN 546634-30-4 CAPIUS  
 CN 9,9'-Spiro[bi(9H-fluorene)-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N'''-heptaphenyl- (9CI) (CA INDEX NAME)



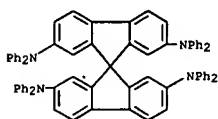
L10 ANSWER 15 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN  
 AB Systematic studies are a prerequisite for a detailed understanding of the  
 internal processes in organic semiconductors and devices, which is of  
 great importance for optimizing organic light-emitting diode performance.  
 Devices based on small moles. are especially well-suited for introducing thin  
 layers (<10 nm), which in turn can be used as anal. and sensing tools. Combinatorial  
 methods were used to fabricate matrices of 10\*10 individual devices  
 on single substrate to ensure reliable and reproducible datasets.  
 Selected examples are presented to illustrate the strength of this  
 method.

These expts. include layer thickness variations in a multilayer system to  
 optimize device performance. A thin metallic and dye-doped sensing layer  
 is inserted into the device to derive the distribution of the elec. field  
 and exciton d., resp. By thickness-dependent luminescent measurements  
 insight is gained into luminescence quenching near interfaces.

ACCESSION NUMBER: 2003:406151 CAPIUS  
 DOCUMENT NUMBER: 139:171044  
 TITLE: Investigation of internal processes in organic  
 light-emitting devices using thin sensing layers  
 AUTHOR(S): Beierlein, T. A.; Ruhstaller, B.; Gundlach, D. J.;  
 Riel, H.; Karg, S.; Rost, C.; Riess, W.  
 CORPORATE SOURCE: IBM Research, Zurich Research Laboratory,  
 Rueschlikon, CH-8803, Switz.  
 SOURCE: Synthetic Metals (2003), 138(1-2), 213-221  
 CODEN: SYMDEZ; ISSN: 0379-6779  
 PUBLISHER: Elsevier Science B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

IT 189363-47-1  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical  
 process); PAP (Properties); PYP (Physical process); PROC (Process); USES  
 (Uses)  
 (internal processes in organic LEDs using thin sensing layers  
 containing)

RN 189363-47-1 CAPIUS  
 CN 9,9'-Spiro[bi(9H-fluorene)-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N'''-octaphenyl- (9CI) (CA INDEX NAME)

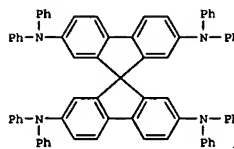


REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
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L10 ANSWER 14 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN (Continued)

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
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L10 ANSWER 16 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN  
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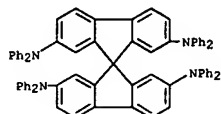
AB A process for the preparation of tertiary amines (ArNR1R2) via the  
 nickel or palladium mediated coupling of secondary amines (H-NR1R2) with arom.  
 (Ar-(X)n) [Ar = (un)substituted aromatic, heteroarom.; R1, R2 =  
 trichloroethylene, (un)substituted alkyl; X = reactive leaving group  
 (sic); n = 1-10] in the presence of a base and a phosphine is disclosed.  
 For example, to a degassed suspension of 2,2',7,7'-tetrabromo-9,9'-  
 spirobifluorene (50 mmol), sodium tert-butoxide (315 mmol) in toluene  
 (400 mL) was added bis(1,1-dimethylethyl)phosphinous chloride (2 mmol). After  
 5 min, palladium (II) acetate (1 mmol) and diphenylamine (225 mmol) was  
 added sequentially, and the reaction heated at reflux for 2 h. The  
 reaction was cooled, and after aqueous work-up provided bifluorenyl  
 arylamine I in 97% yield. The tertiary amines (ArNR1R2) are claimed useful as  
 reagents or intermediates for pharmaceuticals, agrochemicals, electronics  
 chems. etc.

ACCESSION NUMBER: 2003:356399 CAPIUS  
 DOCUMENT NUMBER: 139:368629  
 TITLE: Preparation of spiro-9,9'-bifluorenylarylamines and  
 related compounds via the nickel or palladium  
 mediated coupling of secondary amines and aromatics  
 INVENTOR(S): Stoessel, Philipp; Spreitzer, Hubert; Becker,  
 Heinrich  
 PATENT ASSIGNEE(S): Covion Organic Semiconductors G.m.b.H., Germany  
 SOURCE: PCT Int. Appl., 30 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003037844	A1	20030508	WO 2002-EP11942	20021025
W: CN, JP, KR, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
DE 10153450	A1	20030522	DE 2001-10153450	20011030

L10 ANSWER 16 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)  
 EP 1442007 A1 20040804 EP 2002-783005 20021025  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, FI, CY, TR, BG, CZ, EE, SK  
 PRIORITY APPLN. INFO.: DE 2001-10153450 A 20011030  
 WO 2002-EP11942 W 20021025

OTHER SOURCE(S): CASREACT 138:368629  
 IT 189363-47-1P  
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP  
 (Preparation)  
 (product: preparation of spirobifluorenylarylamines and related  
 compds. via the nickel or palladium mediated coupling of secondary amines and  
 aromas.)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spiro[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



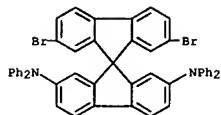
REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 17 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Spirobifluorene-type unit-containing conjugated polymer, useful in  
 optoelectronic devices, are manufactured containing 21 addnl. unit that  
 (a) improves the insertion or transportation of holes, (b) improves the  
 insertion or transportation of electrons, (c) accomplishes both (a) and  
 (b), and (d) exhibits phosphorescence. A typical polymer was  
 manufactured by  
 polymerization of 1.768 g 2,7-dibromo-2',3',6',7'-tetrakis(2-  
 methylbutoxy)spirobifluorene with 0.183 g N,N'-bis(4-bromophenyl)-N,N'-  
 bis(4-tert-butylphenyl)benzidine by the Yamamoto coupling in PhMe-DMF  
 mixture in the presence of 1,5-cyclooctadiene, Ni(COD)2, and  
 2,2'-bipyridyl.  
 ACCESSION NUMBER: 2003:202698 CAPLUS  
 DOCUMENT NUMBER: 138:238568  
 TITLE: Conjugated polymers containing spirobifluorene units  
 and the use thereof  
 INVENTOR(S): Becker, Heinrich; Treacher, Kevin; Spreitzer, Hubert;  
 Falcou, Aurelie; Stoessel, Philipp; Buesing, Arne;  
 Parham, Amir  
 PATENT ASSIGNEE(S): Covion Organic Semiconductors G.m.b.H., Germany  
 SOURCE: PCT Int. Appl., 58 pp.  
 CODEN: FIKXK2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

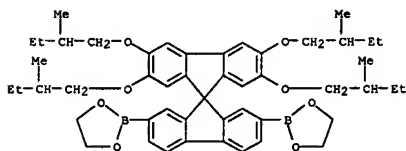
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003020790	A2	20030313	WO 2002-EP9628	20020829
WO 2003020790	A3	20030912		
W: CN, JP, KR, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
DE 10143353	A1	20030320	DE 2001-10143353	20010904
EP 1427768	A2	20040616	EP 2002-772227	20020829
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
PRIORITY APPLN. INFO.:			DE 2001-10143353	A 20010904
			WO 2002-EP9628	W 20020829

IT 501435-13-8P 501435-27-4P 501435-28-5P  
 501435-29-6P  
 RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
 (conjugated polymers containing spirobifluorene units and units that  
 phosphoresce for optoelectronic devices)  
 RN 501435-13-8 CAPLUS  
 CN 9,9'-Spiro[9H-fluorene]-2,7-diamine,  
 2',7'-dibromo-N,N,N',N'-tetraphenyl-  
 , polymer with 5,8-dibromo-2,3-diphenylquinoxaline, 2,7-dibromo-  
 2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spiro[9H-fluorene] and  
 2,2'-(2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spiro[9H-fluorene]-2,7-  
 diyl)bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 501434-80-6  
 CMF C49 H32 Br2 N2

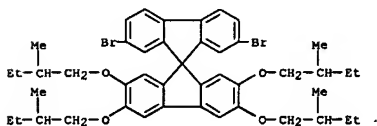
L10 ANSWER 17 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



CM 2  
 CRN 396123-43-6  
 CMF C49 H62 Br2 O8

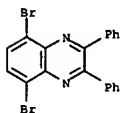


CM 3  
 CRN 395059-23-1  
 CMF C45 H54 Br2 O4



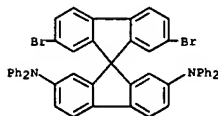
CM 4  
 CRN 94544-77-1  
 CMF C20 H12 Br2 N2

L10 ANSWER 17 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

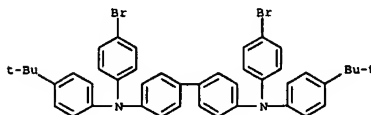


RN 501435-27-4 CAPLUS  
 CN 9,9'-Spiro[9H-fluorene]-2,7-diamine,  
 2',7'-dibromo-N,N,N',N'-tetraphenyl-  
 , polymer with N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-  
 dimethylethyl)phenyl][1,1'-biphenyl]-4,4'-diamine,  
 2,7-dibromo-2',3',6',7'-  
 tetrakis(2-methylbutoxy)-9,9'-spiro[9H-fluorene] and  
 2,2'-(2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spiro[9H-fluorene]-2,7-  
 diyl)bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

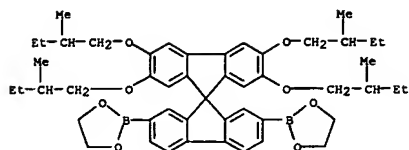
CM 1  
 CRN 501434-80-6  
 CMF C49 H32 Br2 N2



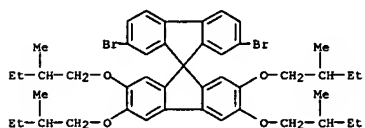
CM 2  
 CRN 463944-36-7  
 CMF C44 H42 Br2 N2



CM 3  
 CRN 396123-43-6  
 CMF C49 H62 Br2 O8

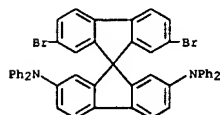


CM 4

CRN 395059-23-1  
CMF C45 H54 Br2 O4

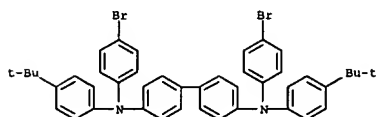
RN 501435-28-5 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine,  
2',7'-dibromo-N,N,N',N'-tetraphenyl-  
, polymer with N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl][1,1'-biphenyl]-4,4'-diamine and 2',7'-dibromo-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] (9CI) (CA INDEX NAME)

CM 1

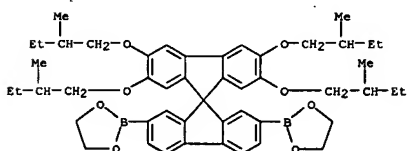
CRN 501434-80-6  
CMF C49 H32 Br2 N2

CM 2

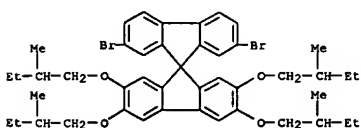
CM 2

CRN 463944-36-7  
CMF C44 H42 Br2 N2

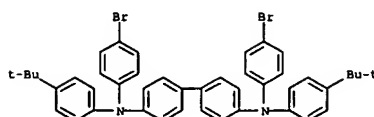
CM 3

CRN 396123-43-6  
CMF C49 H62 B2 O8

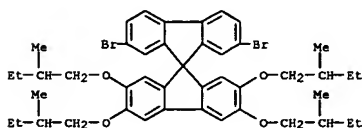
CM 4

CRN 395059-23-1  
CMF C45 H54 Br2 O4

CM 5

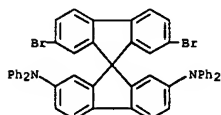
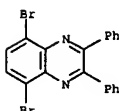
CRN 463944-36-7  
CMF C44 H42 Br2 N2

CM 3

CRN 395059-23-1  
CMF C45 H54 Br2 O4

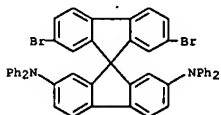
RN 501435-29-6 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine,  
2',7'-dibromo-N,N,N',N'-tetraphenyl-  
, polymer with N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl][1,1'-biphenyl]-4,4'-diamine, 5,8-dibromo-2,3-diphenylquinoxaline,  
2,7-dibromo-2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] and 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

CM 1

CRN 501434-80-6  
CMF C49 H32 Br2 N2CRN 94544-77-1  
CMF C20 H12 Br2 N2

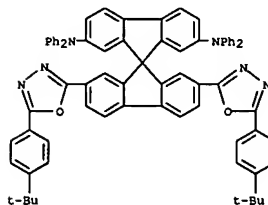
IT 501434-80-6P, 2,7-Dibromo-2',7'-(N,N-diphenylamino)-9,9'-spirobifluorene  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);  
RACT (Reactant or reagent)  
(monomer; conjugated polymers containing spirobifluorene units and units that phosphoresce for optoelectronic devices)

RN 501434-80-6 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine,  
2',7'-dibromo-N,N,N',N'-tetraphenyl-  
(9CI) (CA INDEX NAME)



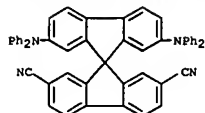
L10 ANSWER 18 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The authors demonstrate a general feature of organic films between a substrate and a deformable cladding layer: the capability of forming periodic structures by heating above the glass transition temperature of the organic film. This patterning process by self-organization is caused by the interplay of dispersion interactions and mech. stress which leads to spinodal deformation. The dynamic evolution of the structures was studied by time-resolved light diffraction. By pre-patterning the substrate, the direction of the waves can be controlled.  
 ACCESSION NUMBER: 2002:982842 CAPLUS  
 DOCUMENT NUMBER: 138:279587  
 TITLE: Spinodal patterning in organic-inorganic hybrid layer systems  
 AUTHOR(S): Muller-Wiegand, M.; Georgiev, G.; Oesterschulze, E.; Fuhrmann, T.; Salbeck, J.  
 CORPORATE SOURCE: Center of Interdisciplinary Nanostructure Science and Technology (CINSaT), Institute of Technical Physics, University of Kassel, Kassel, D-34109, Germany  
 SOURCE: Applied Physics Letters (2002), 81(26), 4940-4942  
 CODEN: APPLAB; ISSN: 0003-6951  
 PUBLISHER: American Institute of Physics  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 17  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 19 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Some 9,9'-spirobifluorene-bridged bipolar systems containing 1,3,4-oxadiazole-conjugated oligoaryl and triarylamine moieties have been synthesized, which exhibit remarkable solvent-polarity dependent fluorescence properties due to a highly efficient photoinduced electron transfer reaction.  
 ACCESSION NUMBER: 2002:884493 CAPLUS  
 DOCUMENT NUMBER: 138:189397  
 TITLE: Syntheses and spectroscopic studies of spirobifluorene-bridged bipolar systems; photoinduced electron transfer reactions  
 AUTHOR(S): Chien, Yuh-Yih; Wong, Ken-Taung; Chou, Pi-Tai; Cheng, Yi-Ming  
 CORPORATE SOURCE: Department of Chemistry, National Taiwan University, Taichung, 106, Taiwan  
 SOURCE: Chemical Communications (Cambridge, United Kingdom) (2002), (23), 2874-2875  
 CODEN: CHCOFS; ISSN: 1359-7345  
 PUBLISHER: Royal Society of Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 138:189397  
 IT 497955-46-1 P  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (dye; preparation and spectroscopic studies of spirobifluorene-bridged bipolar dye)  
 RN 497955-46-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, 2',7'-bis[5-[4-(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)

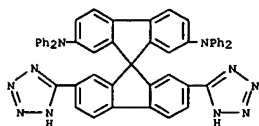


IT 497955-49-4P 497955-50-7P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (intermediate; preparation and spectroscopic studies of spirobifluorene-bridged bipolar dye)  
 RN 497955-49-4 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-dicarbonitrile, 2',7'-bis(diphenylamino)- (9CI) (CA INDEX NAME)

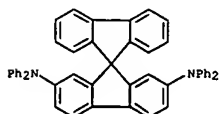
L10 ANSWER 19 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



RN 497955-50-7 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



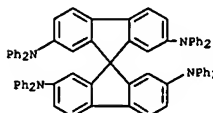
IT 244301-18-6  
 RL: PRP (Properties)  
 (model compound; preparation and spectroscopic studies of spirobifluorene-bridged bipolar dye)  
 RN 244301-18-6 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



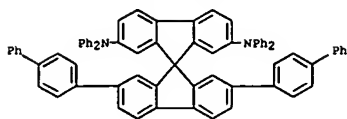
REFERENCE COUNT: 7  
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 20 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The authors have studied the field-effect mobility of three kinds of low mol. weight spirolinked compds., 2,2',7,7'-tetrakis(diphenylamino)-9,9'-spirobifluorene (spiro-TAD), 2,2',7,7'-tetrakis(biphenyl-4-yl)-9,9'-spirobifluorene (spiro-60) and 2,7-bis-(N,N-diphenylamino)-2',7'-bis(biphenyl-4-yl)-9,9'-spirobifluorene (spiro-X2). The field-effect mobilities of these materials in the saturation region are 8 + 10<sup>-4</sup> cm<sup>2</sup>V<sup>-1</sup>s<sup>-1</sup>, 5 + 10<sup>-5</sup> cm<sup>2</sup>V<sup>-1</sup>s<sup>-1</sup> and 4 + 10<sup>-4</sup> cm<sup>2</sup>V<sup>-1</sup>s<sup>-1</sup> resp. The atomic force microscopy images show that films prepared from these materials are amorphous with a very smooth surface and the limited field-effect mobility is due to the intrinsic behavior of amorphous materials.

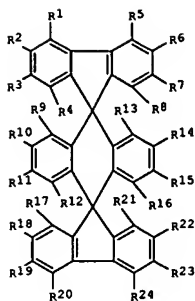
ACCESSION NUMBER: 2002:865208 CAPLUS  
 DOCUMENT NUMBER: 138:178651  
 TITLE: Field-effect mobility and morphology study in amorphous films of symmetric and unsymmetrical spiro-linked compounds  
 AUTHOR(S): Saragol, Tobat P. I.; Pudrich, Robert; Fuhrmann, Thomas; Salbeck, Josef  
 CORPORATE SOURCE: Macromolecular Chemistry and Molecular Materials Department of Physics, University of Kassel, Kassel, D 34109, Germany  
 SOURCE: Materials Research Society Symposium Proceedings (2002), 725(Organic and Polymeric Materials and Devices--Optical, Electrical and Optoelectronic Properties), 85-91  
 CODEN: MRSPPH; ISSN: 0272-9172  
 PUBLISHER: Materials Research Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 189363-47-1, 2,2',7,7'-Tetrakis(diphenylamino)-9,9'-spirobifluorene  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (spiro-TAD; field-effect mobility and morphol. in amorphous films of sym. and unsym. spiro-linked compds.)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N'''-octaphenyl- (9CI) (CA INDEX NAME)



IT 497157-27-4  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (spiro-X2; field-effect mobility and morphol. in amorphous films of sym. and unsym. spiro-linked compds.)  
 RN 497157-27-4 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, 2',7'-bis([1,1'-biphenyl]-4-yl)-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT



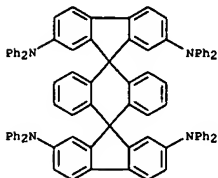
AB Double-spiro organic compds. are claimed which are described by the general formula I (R1-24 = independently selected substituents not all of which are H). Light-emitting, hole-transporting, and electron-transporting materials comprising the compds. are also described. Electroluminescent materials comprising the compds, including deposited films, methods for depositing the materials, and organic electroluminescent devices employing the materials, and method for fabricating the devices, are also described.

ACCESSION NUMBER: 2002:849756 CAPLUS  
DOCUMENT NUMBER: 137:360139  
TITLE: Double-spiro organic compounds and electroluminescent devices  
INVENTOR(S): Kim, Kong-Kyeum; Son, Se-Hwan; Yoon, Seok-Hee; Bae, Jae-Soon; Lee, Youn-Gu; Im, Sung-Gap; Kim, Ji-Eun; Lee, Jae-Chol  
PATENT ASSIGNEE(S): LG Chem, Ltd., S. Korea  
SOURCE: PCT Int. Appl., 117 pp.  
CODEN: PIXX02  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002088274	A1	20021107	WO 2002-KR458	20020318
W: CN, JP				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,				

PT, SE, TR  
KR 2002083614 A 20021104 KR 2001-23038 20010427  
KR 2002083615 A 20021104 KR 2001-23039 20010427  
US 2004023060 A1 20040205 US 2002-99781 20020314  
EP 1294823 A1 20030326 EP 2002-705589 20020318  
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR  
JP 2004529937 T2 20040930 JP 2002-585559 20020318  
US 2004110863 A1 20040902 US 2003-718083 20031119  
PRIORITY APPLN. INFO.: KR 2001-23038 A 20010427  
US 2002-99781 A3 20020314  
WO 2002-KR458 W 20020318

OTHER SOURCE(S): MARPAT 137:360139  
IT 474688-52-3  
RL: DEV (Device component use); USES (Uses)  
(double-spiro organic compds. and electroluminescent devices using them)  
RN 474688-52-3 CAPLUS  
CN Dispiro[9H-fluorene-9,9'(10'H)-anthracene-10',9''-[9H]fluorene]-2,2'',7'',7'''-tetramine, N,N,N',N'',N''',N''',N'''-octaphenyl- (9CI)  
(CA INDEX NAME)



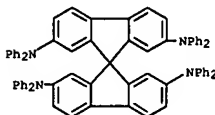
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Organic light-emitting devices are described in which hole-transporting, light-emitting, and electron-transporting regions are joined by compositionally graded mixed regions. The devices avoid problems with interfaces between layers which are present in the conventional laminate structure. The devices may incorporate color conversion layers or color filters, and may be constructed to serve as displays. Electronic equipment (video cameras, digital cameras, image reproduction apparatus, portable computers, personal computers, and mobile telephones) employing the displays is also described.

ACCESSION NUMBER: 2002:638080 CAPLUS  
DOCUMENT NUMBER: 137:176925  
TITLE: Organic light emitting device and display device using the same  
INVENTOR(S): Seo, Satoshi; Yamazaki, Shunpei  
PATENT ASSIGNEE(S): Japan  
SOURCE: U.S. Pat. Appl. Publ., 45 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002113546	A1	20020822	US 2002-81558	20020220
JP 2002324673	A2	20021108	JP 2002-43419	20020220
CN 1372434	A	20021002	CN 2002-105131	20020222
PRIORITY APPLN. INFO.: JP 2001-45883 A 20010222				

IT 189363-47-1  
RL: DEV (Device component use); USES (Uses)  
(organic light emitting devices with graded interfaces and electronic devices using them)  
RN 189363-47-1 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N'',N''',N''',N'''-octaphenyl- (9CI) (CA INDEX NAME)







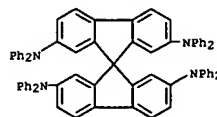
L10 ANSWER 25 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN  
 AB Light emitting devices are described which comprise at least a first layer comprising a first organic compound; and a second layer comprising a second organic compound which is different from the first organic compound, where a region or a mixed layer comprising the first organic compound and the second organic compound between the first layer and the second layer is provided for lowering energy barriers at interfaces between the organic layers. The devices may contain hole-injecting, hole-transporting, electron-transporting, electron-injecting and light-emitting layers as organic compound layers, and may have more than one regions or mixed layers.  
 Electronic devices employing the light-emitting devices are also discussed.  
 ACCESSION NUMBER: 2002:503505 CAPIUS  
 DOCUMENT NUMBER: 137:70359  
 TITLE: Organic light-emitting devices containing a region or a mixed layer provided for lowering energy barriers at interfaces between the organic layers, and electronic devices employing the light-emitting devices  
 INVENTOR(S): Seo, Satoshi; Yamazaki, Shunpei  
 PATENT ASSIGNEE(S): SEL Semiconductor Energy Laboratory Co., Ltd., Japan  
 SOURCE: Eur. Pat. Appl., 78 pp.  
 CODEN: EPXKDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1220339	A2	20020703	EP 2001-130487	20011220
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
TW 545080	B	20030801	TW 2001-90131393	20011218
SG 93298	A1	20021217	SG 2001-7839	20011219
US 2002121860	A1	20020905	US 2001-24699	20011221
JP 2002324680	A2	20021108	JP 2001-395213	20011226
CN 1362747	A	20020807	CN 2001-130274	20011228
PRIORITY APPL. INFO.: JP 2000-400730 A 20001228				
JP 2001-45847 A 20010221				

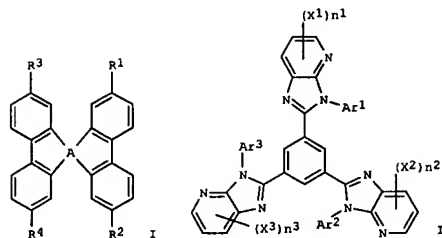
IT 189363-47-1  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)  
 (hole-transporting layer; fabrication of light-emitting devices)  
 containing mixed layer lowering energy barriers at interfaces between organic layers and containing spiro-TAD)  
 RN 189363-47-1 CAPIUS  
 CN 9,9'-Spiro[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)

L10 ANSWER 26 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN  
 AB The authors demonstrate efficient organic electroluminescent devices with multiple well structure and a p-doped hole injection and transport layer (HTL). The multiple well structure improves the efficiency and the controlled p-doped HTL leads to a lower operating voltage. An amorphous starburst [4,4',4''-tris(N,N-diphenylamino)triphenylamine] doped with a strong organic acceptor, tetrafluoro-tetracyano-quinodimethane serves as the HTL material, a spiro-linked compound, 2,2',7',7''-tetrakis-(diphenylamine)-9,9'-spirobifluorene as an interlayer to provide a favorable interface and as a barrier within the multiple well structure and 8-tris-hydroxyquinoline as an emitter and well. The double-well device exhibits low operating voltage, <4 V, for obtaining 100 cd/m<sup>2</sup> and the highest current efficiency exceeding 5 cd/A. Changes in the spectra due to the different well structures are also discussed.  
 ACCESSION NUMBER: 2001:867197 CAPIUS  
 DOCUMENT NUMBER: 136:109747  
 TITLE: Low operating voltage and high efficiency organic multilayer electroluminescent devices with p-type doped hole injection layer  
 AUTHOR(S): Huang, Jingsong; Pfeiffer, Martin; Blochwitz, Jan; Werner, Ansgar; Salbeck, Josef; Liu, Shiyong; Leo, Karl  
 CORPORATE SOURCE: Institut für Angewandte Photophysik, Technische Universität Dresden, Dresden, D-01062, Germany  
 SOURCE: Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (2001), 40(11), 6630-6633  
 CODEN: JAPNDE  
 PUBLISHER: Japan Society of Applied Physics  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS  
 FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

L10 ANSWER 25 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN (Continued)



L10 ANSWER 27 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN  
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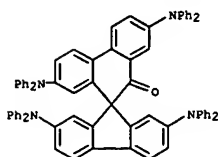


AB The invention refers to an organic electroluminescent component comprising I [R1-4 = substituents; A = ≥ 2 C atoms, ≥ 1 carbon substituted with non-carbon atoms or form a biphenyl derivative] as a hole transport luminescent layer, and II [Ar1-3 = aryl or aromatic heterocycle; X1-3 = substituents; n1-3 = 0 - 3] as an electron transport layer.  
 ACCESSION NUMBER: 2001:847757 CAPIUS  
 DOCUMENT NUMBER: 135:378557  
 TITLE: Organic electroluminescent component  
 INVENTOR(S): Ishii, Masahiko; Tokito, Seiji; Noda, Hiroshi; Taga, Yasunori; Okada, Hisashi; Kimura, Makoto; Sawaki, Yasuhiko  
 PATENT ASSIGNEE(S): Toyota Central Research and Development Laboratories, Inc., Japan; Fuji Photo Film Co., Ltd.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 2218 pp.  
 CODEN: JWOQAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

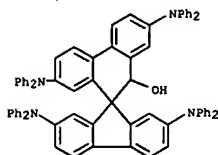
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001326079	A2	20011122	JP 2000-145774	20000517
PRIORITY APPL. INFO.: JP 2000-145774 20000517				

OTHER SOURCE(S): MARPAT 135:378557  
 IT 261517-63-9P 267884-20-8P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (organic electroluminescent component)  
 RN 261517-63-9 CAPIUS

L10 ANSWER 27 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN (Continued)  
 CN Spiro[9H-fluorene-9,9'-(10'H)-phenanthren]-10'-one, 2,2',7,7'-  
 tetrakis(diphenylamino)- (9CI) (CA INDEX NAME)



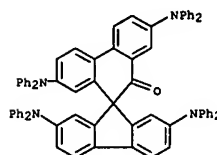
RN 267884-20-8 CAPLUS  
 CN Spiro[9H-fluorene-9,9'-(10'H)-phenanthren]-10'-ol, 2,2',7,7'-  
 tetrakis(diphenylamino)- (9CI) (CA INDEX NAME)



L10 ANSWER 28 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN  
 AB The authors have fabricated highly efficient organic light-emitting  
 diodes  
 (OLEDs) using novel hole-transporting emissive materials with  
 triphenylamine moiety. The novel emissive materials have a high glass  
 transition temperature ranging from 141-152°, which is attributed to  
 nonplanar mol. structure. The OLEDs consist of an emitting layer of the  
 novel emissive material and an electron-transport layer of  
 tris(8-quinolino) Al (Alq3). Emission colors of the OLEDs were  
 bluish-green and greenish-yellow. High external quantum efficiency of  
 1.2-2% was obtained at a luminance of 300 cd/m2, and good durability in a  
 continuous operation at room temperature and high temps. was achieved.

ACCESSION NUMBER: 2001:400149 CAPLUS  
 DOCUMENT NUMBER: 135:187365  
 TITLE: Electroluminescence in novel hole-transporting  
 emissive materials  
 AUTHOR(S): Tokito, Shizuo; Noda, Koji; Fujikawa, Hiroyoshi;  
 Kimura, Makoto; Shimada, Kou; Sawaki, Yasuhiko; Taga,  
 Yasunori  
 CORPORATE SOURCE: TOYOTA Central Research & Development Laboratories,  
 INC., Nagakute, Aichi, 480-1192, Japan  
 SOURCE: Proceedings of SPIE-The International Society for  
 Optical Engineering (2001), 4105(Organic  
 Light-Emitting Materials and Devices IV), 316-321  
 CODEN: PSISDG; ISSN: 0277-786X  
 PUBLISHER: SPIE-The International Society for Optical  
 Engineering  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

IT 261517-63-9  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (properties and electroluminescence and applications of novel  
 hole-transporting emissive materials)  
 RN 261517-63-9 CAPLUS  
 CN Spiro[9H-fluorene-9,9'-(10'H)-phenanthren]-10'-one, 2,2',7,7'-  
 tetrakis(diphenylamino)- (9CI) (CA INDEX NAME)



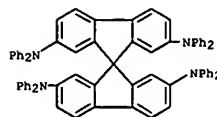
REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR  
 THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 29 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN  
 AB The temperature stability of white and blue OLEDs was studied by  
 observing the  
 I-V, EL-V and the spectral characteristics of various devices stored at  
 elevated temperature (>130°). Blue multilayer organic light emitting  
 diodes (OLEDs) containing PEDOT (polyethylenedioxythiophene) or PANI  
 (polyaniline) derivs. as the hole injection and buffer layer, aromatic  
 diamines like Spiro-TAD (2,2',7,7'-tetrakis(diphenylamino)spiro-9,9'-  
 bifluorene) as a hole transport material (HTM), Spiro-DPVB1  
 (2,2',7,7'-tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene) as an  
 emitting material (EM) and of Alq3 (tris(8-hydroxyquinolino)aluminum)

as  
 the electron-injection and electron-transport layer (ETL) were  
 fabricated.  
 White OLEDs were prepared, containing an addnl. DCM  
 (dicyanmethylen-2-methyl-6-  
 (p-dimethylaminostyryl)-4H-pyran) doped Alq3 layer between the  
 Spiro-DPVB1  
 and Alq3 layer. Use of Spiro-TAD as a hole transport material (HTM) and  
 of Spiro-DPVB1 as an emitting material (EM) resulted in dramatically  
 improved temperature stability: for the white and blue OLED no  
 significant  
 deterioration up to 130° were found. Devices consisting of non  
 spiro components like NPB and/or DPVB1 already started to degrade at much  
 lower temps.

ACCESSION NUMBER: 2001:400127 CAPLUS  
 DOCUMENT NUMBER: 135:187082  
 TITLE: White and blue temperature stable and efficient OLEDs  
 using amorphous spiro transport and spiro emitting  
 compounds  
 AUTHOR(S): Spreitzer, Hubert; Vestweber, Horst; Stoessel,  
 Philipp; Becker, Heinrich  
 CORPORATE SOURCE: Covion Organic Semiconductors GmbH, Frankfurt,  
 D-65926, Germany  
 SOURCE: Proceedings of SPIE-The International Society for  
 Optical Engineering (2001), 4105(Organic  
 Light-Emitting Materials and Devices IV), 125-133  
 CODEN: PSISDG; ISSN: 0277-786X  
 PUBLISHER: SPIE-The International Society for Optical  
 Engineering  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 189363-47-1, 2,2',7,7'-Tetrakis(diphenylamino)spiro-9,9'-  
 bifluorene  
 RL: DEV (Device component use); USES (Uses)  
 (white and blue temperature stable and efficient LEDs using amorphous  
 transport material)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spiro[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-  
 octaphenyl- (9CI) (CA INDEX NAME)

L10 ANSWER 29 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN (Continued)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 30 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN

AB The introduction of a spiro center between 2 charge transport material (CTM) moieties strongly improves the thermal stability of the amorphous state, without significantly changing its charge-transport properties. The observed decrease in the hole-mobility is of the same magnitude as that arising from changes in film morphol. due to variation of the evaporation conditions or the presence of trace impurities. Conferring higher thermal stability on the amorphous state by modification of the chemical structure of the CTM is superior to the classical approach where the amorphous state is stabilized by blending the CTM into a polymer matrix, e.g., polycarbonate!

which is usually accompanied by a mobility drop of > 1 order of magnitude). In contrast spiro CTMs combine the high morphol. stability with commonly only observed in polymeric systems with the high charge mobility of low-mol.-weight CTMs.

ACCESSION NUMBER: 2000:595125 CAPLUS

DOCUMENT NUMBER: 133:309625

TITLE: Characterization of hole transport in a new class of spiro-linked oligotriphenylamine compounds

AUTHOR(S): Bach, Udo; De Cloedt, Kenny; Spreitzer, Hubert; Gratzel, Michael

CORPORATE SOURCE: Institute of Photonics and Interfaces, Swiss Federal

Institute of Technology, Lausanne, CH-1015, Switz.

SOURCE: Advanced Materials (Weinheim, Germany) (2000),

12(14),

1060-1063

CODEN: ADVMEW; ISSN: 0935-9648

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

IT 189363-47-1

RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); PRP (Properties); TEM (Technical or engineered material use);

PROC (Process); USES (Uses)

(characterization of hole transport in spiro-linked

oligotriphenylamine

compds.)

RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,

N,N,N',N',N'',N'',N''',N''''-

octaphenyl- (9CI) (CA INDEX NAME)

octaphenyl- (9CI) (CA INDEX NAME)

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L10 ANSWER 30 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

L10 ANSWER 31 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN

AB The temperature stability of OLEDs was studied by observing the I-V and EL-V characteristics of various devices stored at elevated temperature (up to 140°). Results reported in this paper concern the standard KODAK structure for a green OLED (i.e. anode/CuPc/NPB/AlQ3/cathode), the standard IDEMITSU structure for a blue OLED (i.e. anode/CuPc/NPB/DPVBI/AlQ3/cathode

) and variants of those using high Tg materials consisting of a spiro-bifluorene core. Use of Spiro-TAD as a hole transport material (HTM) and of Spiro-DPVBI as an emitting material (EM) resulted in considerable improvements. While the initial performance of the virgin devices is considerably unchanged, the temperature stability increases dramatically: for the green OLED no significant deterioration up to 140° is found, compared to the standard device including NPB already starting to degrade slightly >100°; the blue OLED is stable up to .apprx.120° (particularly the color coordinates of the emitted light) whereas the standard device using DPVBI already deteriorates at .apprx.80°.

ACCESSION NUMBER: 2000:462272 CAPLUS

DOCUMENT NUMBER: 133:258976

TITLE: Temperature stability of OLEDs using amorphous

compounds with spiro-bifluorene core

AUTHOR(S): Spreitzer, Hubert; Schenk, Hermann W.; Salbeck,

Josef;

Corporation, Frank; Reil, Heike; Riess, Walter

CORPORATE SOURCE: Ind. Park Hochst, Covion Organic Semiconductors,

Frankfurt, Germany

SOURCE: Proceedings of SPIE-The International Society for

Optical Engineering (1999), 3797(Organic

Light-Emitting Materials and Devices III), 316-324

CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical

Engineering

DOCUMENT TYPE: Journal

LANGUAGE: English

IT 189363-47-1

RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); PRP (Properties); PROC (Process); USES (Uses)

(temperature stability of OLEDs using amorphous compds. with

spiro-bifluorene

core)

RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,

N,N,N',N',N'',N'',N''',N''''-

octaphenyl- (9CI) (CA INDEX NAME)

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L10 ANSWER 31 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB An organic EL element comprising an anode, a cathode, and 21 organic compound layers sandwiched between the anode and the cathode, wherein one of the organic compound layers comprises an organic compound represented by chemical formula I (A = C>1 group; R1-4 = diphenylamino, oxadiazol, triazol, etc.) specifically any of the chemical formulas II (R1-4 = H, alkyl, Ph, etc.), III (R1-4 = H, alkyl, alkoxy, etc.; R5-16 = substituent), IV (R1-4 = H, alkyl, alkoxy, etc.; R5-16 = substituent) and V (R1-4 = H, alkyl, alkoxy, etc.; R5-16 = substituent). By incorporating desired substituents as R1 to R4, the compound can be made to have one or more of a hole-transporting function, luminescent function, and electron-transporting function. Since the mol. is apt to be nonplanar because of its structure, the compound is less apt to crystallize and has a high oxide glass transition temperature. Therefore, when used in an organic EL element, the compound contributes to an improvement in element life.

ACCESSION NUMBER: 2000:335497 CAPLUS  
DOCUMENT NUMBER: 132:341271  
TITLE: Organic electroluminescent device  
INVENTOR(S): Tokito, Shizuo; Noda, Koji; Fujikawa, Misayoshi; Ishii, Masahiko; Taga, Yasunori; Kimura, Makoto; Sawaki, Yasuhiko  
PATENT ASSIGNEE(S): Kabushiki Kaisha Toyota Chuo Kenkyusho, Japan  
SOURCE: PCT Int. Appl., 62 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000027946	A1	20000518	WO 1999-JP6290	19991111
W: JP, US RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 6416887	B1	20020709	US 2000-581544	20000711
PRIORITY APPLN. INFO.:				
			JP 1998-321080	A 19981111
			JP 1999-65683	A 19990311
			WO 1999-JP6290	W 19991111

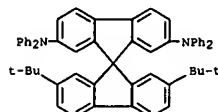
OTHER SOURCE(S): MARPAT 132:341271  
IT 267884-20-8P  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);

AB The authors have studied the influence of hole transporting material on the electroluminescence characteristics in two-layer devices based on tris(8-quinolinolato) Al. Five hole transporting materials including two novel materials were used. No difference in turn-on voltages for light emission was seen in the devices fabricated on In-Sn-oxide treated by Ar/O plasma, and a high luminance of 10000 cd/m<sup>2</sup> was achieved at an operating voltage around 10 V. However, the photometric efficiency depended on the hole transporting material. High photometric efficiency of 6.1 cd/A and high luminous efficiency of 3.6 lm/W at a luminance of 300 cd/m<sup>2</sup> were obtained in one of the devices.

ACCESSION NUMBER: 2000:126914 CAPLUS  
DOCUMENT NUMBER: 132:285725  
TITLE: Influence of hole transporting material on device performance in organic light-emitting diode  
AUTHOR(S): Tokito, S.; Noda, K.; Shimada, K.; Inoue, S.-i.; Kimura, M.; Sawaki, Y.; Taga, Y.  
CORPORATE SOURCE: TOYOTA Central Research & Development Labs., Inc., Nagakute-cho, Aichi, Japan  
SOURCE: Thin Solid Films (2000), 363(1,2), 290-293  
CODEN: THSFAP; ISSN: 0040-6090  
PUBLISHER: Elsevier Science S.A.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 244301-19-7 261517-63-9

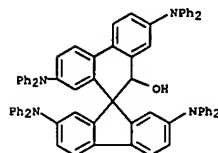
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(influence of hole transporting material on device performance in organic light-emitting diode)

RN 244301-19-7 CAPLUS  
CN 9,9'-Spiro[9H-fluorene]-2,7-diamine, 2',7'-bis(1,1-dimethylethyl)-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



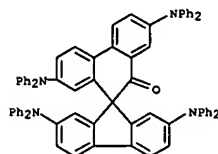
RN 261517-63-9 CAPLUS  
CN Spiro[9H-fluorene-9,9'-(10'H)-phenanthren]-10'-one, 2,2',7,7'-tetrakis(diphenylamino)- (9CI) (CA INDEX NAME)

RN 267884-20-8 CAPLUS  
CN Spiro[9H-fluorene-9,9'-(10'H)-phenanthren]-10'-ol, 2,2',7,7'-tetrakis(diphenylamino)- (9CI) (CA INDEX NAME)



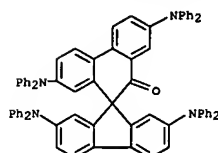
IT 261517-63-9P  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(organic electroluminescent element)

RN 261517-63-9 CAPLUS  
CN Spiro[9H-fluorene-9,9'-(10'H)-phenanthren]-10'-one, 2,2',7,7'-tetrakis(diphenylamino)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 9  
THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

FORMAT

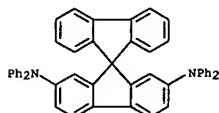


REFERENCE COUNT: 16  
THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

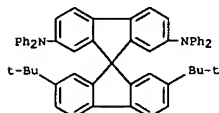
FORMAT

L10 ANSWER 34 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB For multi-color organic electroluminescent (EL) devices, new triphenylamine compounds, attached to a spirocyclic framework were prepared from 2,7-bis(diphenylamino)-9-fluorenone. These amines showed exceedingly high TG's or thermal stability as well as good electrochem. properties and sufficient EL characteristics, allowing practical application.

ACCESSION NUMBER: 2000:108507 CAPLUS  
 DOCUMENT NUMBER: 132:229211  
 TITLE: Spirocyclic-incorporated triphenylamine derivatives as an advanced organic electroluminescent material  
 AUTHOR(S): Kimura, Makoto; Inoue, Shin-Ichiro; Shimada, Kou; Tokito, Shizuo; Noda, Koji; Taga, Yasunori; Sawaki, Yasuhiko  
 CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Engineering, Nagoya University, Nagoya, 464-8603, Japan  
 SOURCE: Chemistry Letters (2000), (2), 192-193  
 CODEN: CMLTAG; ISSN: 0366-7022  
 PUBLISHER: Chemical Society of Japan  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 244301-18-6P 244301-18-7P 261517-63-9P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (spirocyclic-incorporated triphenylamine deriva. as advanced organic electroluminescent material)  
 RN 244301-18-6 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



RN 244301-19-7 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, 2',7'-bis(1,1-dimethylethyl)-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)

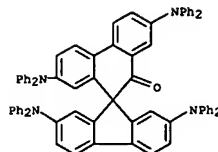


RN 261517-63-9 CAPLUS  
 CN Spiro[9H-fluorene-9,9'(10'H)-phenanthren]-10'-one, 2,2',7,7'-tetrakis(diphenylamino)- (9CI) (CA INDEX NAME)

L10 ANSWER 35 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Direct white light emission from organic LEDs with high-temperature stability using spiro-linked low mol. weight structures was demonstrated. The thermal stability was characterized. The emission spectra were optimized to achieve ideal white light.

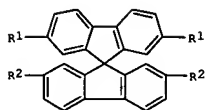
ACCESSION NUMBER: 2000:62778 CAPLUS  
 DOCUMENT NUMBER: 132:129772  
 TITLE: White light emission from organic LEDs utilizing spiro compounds with high-temperature stability  
 AUTHOR(S): Steuber, Frank; Staudigel, Jorg; Stossel, Matthias; Simmerer, Jorgen; Winnacker, Albrecht; Spreitzer, Hubert; Weissortel, Frank; Salbeck, Josef  
 CORPORATE SOURCE: Siemens A.-G., Erlangen, D-91052, Germany  
 SOURCE: Advanced Materials (Weinheim, Germany) (2000), 12(2), 130-133  
 CODEN: ADVMEW; ISSN: 0935-9648  
 PUBLISHER: Wiley-VCH Verlag GmbH  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS  
 FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

L10 ANSWER 34 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS  
 FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

L10 ANSWER 36 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 GI

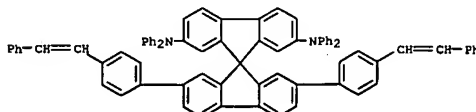


AB The invention relates to an organic electroluminescent device, wherein 21 organic layers comprise an asym. spiro compound having a fluorene-skeleton, represented by I [R1,2 = dissimilar groups selected from H, alkyl, Ph, diarylamino, etc.], for improving the heat resistant properties of the device.

ACCESSION NUMBER: 1999:638518 CAPLUS  
 DOCUMENT NUMBER: 131:250226  
 TITLE: Organic electroluminescent device comprising spiro compound with fluorene-skeleton  
 INVENTOR(S): Tokito, Seishi; Taka, Yasunori; Sawaki, Yasuhiko; Kimura, Makoto; Inoue, Shinichiro  
 PATENT ASSIGNEE(S): Toyota Central Research and Development Laboratories, Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKOXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

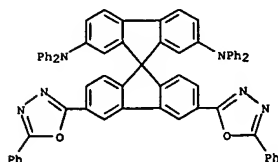
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11273863	A2	19991008	JP 1998-77456	19980325
PRIORITY APPLN. INFO.:				
			JP 1998-77456	19980325

OTHER SOURCE(S): MARPAT 131:250226  
 IT 244301-15-3 244301-17-5 244301-18-6  
 244301-19-7  
 RL: DEV (Device component use); USES (Uses)  
 (organic electroluminescent device comprising spiro compound with fluorene-skeleton)  
 RN 244301-15-3 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N'-tetraphenyl-2',7'-bis[4-(2-phenylethenyl)phenyl]- (9CI) (CA INDEX NAME)

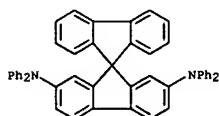


L10 ANSWER 36 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

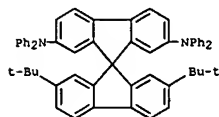
RN 244301-17-5 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N'-tetraphenyl-3',6'-bis(5-phenyl-1,3,4-oxadiazol-2-yl)- (9CI) (CA INDEX NAME)



RN 244301-18-6 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



RN 244301-19-7 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, 2',7'-bis(1,1-dimethylethyl)-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



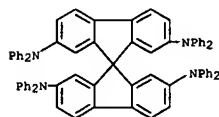
L10 ANSWER 37 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

OTHER SOURCE(S): MARPAT 131:206768

IT 189363-47-1P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(hole-conducting materials based on; photodetectors and their use in anal. and optical recording)

RN 189363-47-1 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N'''-octaphenyl- (9CI) (CA INDEX NAME)



L10 ANSWER 37 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN

AB Apparatus for detecting and determining the intensity of electromagnetic radiation is

described which comprises a photoactive layer consisting of a (preferably nanocryst.) semiconductor with a band gap of >2.5 eV; a dye which is applied to the semiconductor; a charge transfer layer containing a hole-conducting material. The semiconductor may be a metal oxide, preferably a titanium oxide containing material. The dye may be a metal complex, especially a complex of Ru, Rh, or Os. The hole-conducting material

preferably comprises a spiro compound, particularly a derivative of 9,9'-spirobi[fluorene]. Use of the devices for the detection of electromagnetic radiation, preferably visible radiation, is also described. The devices may be employed for analyses using the detection of fluorescence, phosphorescence, changes in absorption, scintillation, and chemiluminescence. The detectors may also be used for detection or determination of specific materials or properties (e.g., temperature, pressure, pH, or redox potential). Selective chemical anal. systems using the detectors

in conjunction with a mol. detection system which can be read using electromagnetic radiation, and a light source as appropriate, are also described for application to environmental, biomol., or diagnostic anal. (especially immunodiagnostic, genetic, or combinatorial anal. systems) are also described. Apparatus for writing and reading out data is described which employs an array of the detectors. Methods for fabricating the detectors entail sequential formation of the layers.

ACCESSION NUMBER: 1999:577139 CAPLUS  
DOCUMENT NUMBER: 131:206768  
TITLE: Photodetector and use of the same  
INVENTOR(S): Windhab, Norbert; Hoppe, Hans-urlich; Lupo, Donald  
PATENT ASSIGNEE(S): Aventis Research and Technologies GmbH and Co. KG, Germany  
SOURCE: PCT Int. Appl., 78 pp.  
CODEN: PIXXKD  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9945595	A2	19990910	WO 1999-EP1206	19990225
WO 9945595	A3	19991223		
W: AU, BR, CA, JP, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19808936	A1	19990916	DE 1998-19808936	19980303
CA 2322458	AA	19990910	CA 1998-2322458	19990225
AU 9930301	A1	19990920	AU 1999-30301	19990225
AU 757033	B2	20030130		
BR 9909240	A	20001114	BR 1999-9240	19990225
EP 1060523	A2	20001220	EP 1999-911706	19990225
R: AT, BE, CH, FR, GB, LI, NL, SE				
JP 2002506290	T2	20020226	JP 2000-535052	19990225
US 6664071	B1	20031216	US 2000-622956	20000926
PRIORITY APPLN. INFO.:			DE 1998-19808936	A 19980303
			WO 1999-EP1206	W 19990225

L10 ANSWER 38 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN

AB The title process comprises amination of aroms. in the presence of a base,

a Pd component (sic) and a phosphine ligand. Thus, 2,2',7,7'-tetrabromo-9,9'-spirobi[fluorene] was refluxed with Ph2NH in PhMe containing Pd(OAc)2 and

P(C6H4Me-2)3 to give 36% 2,2',7,7'-tetrakis(diphenylamino)-9,9'-spirobi[fluorene].

ACCESSION NUMBER: 1999:181677 CAPLUS  
DOCUMENT NUMBER: 130:223056  
TITLE: Preparation of aromatic polyamines  
INVENTOR(S): Spreitzer, Hubert; Kreuder, Willi; Becker, Heinrich; Neumann, Ute  
PATENT ASSIGNEE(S): Hoechst A.-G., Germany  
SOURCE: Ger. Offen., 8 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

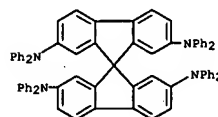
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19738860	A1	19990311	DE 1997-19738860	19970905
WO 9912888	A1	19990318	WO 1998-EP5398	19980826
W: JP, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 1009731	A1	20000621	EP 1998-946429	19980826
R: DE, FR, GB, NL				
JP 2001515879	T2	20010925	JP 2000-510701	19980826
US 6476265	B1	20021105	US 2000-486867	20000510
PRIORITY APPLN. INFO.:			DE 1997-19738860	A 19970905
			WO 1998-EP5398	W 19980826

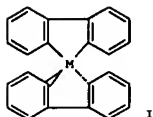
OTHER SOURCE(S): CASREACT 130:223056; MARPAT 130:223056

IT 189363-47-1P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)  
(preparation of aromatic polyamines)

RN 189363-47-1 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N'''-octaphenyl- (9CI) (CA INDEX NAME)





AB The compound is a reversibly oxidizable organic compound with a 1st oxidation potential between the ground state and 700 mV above the ground state.

The compound is a spiro or heterospiro compound such as a spirofluorene derivative I, where M is C, Si, Ge, or Sn and where the benzo groups are independently substituted and/or annelated.

ACCESSION NUMBER: 1998:695150 CAPLUS

DOCUMENT NUMBER: 129:278462

TITLE: Photovoltaic cell with electrolyte redox system of hole-conducting compound

INVENTOR(S): Bach, Udo; Graetzel, Michael; Salbeck, Josef; Weissortel, Frank; Lupo, Donald

PATENT ASSIGNEE(S): Hoechst A.-G., Germany

SOURCE: Ger. Offen., 46 pp. CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19711713	A1	19981001	DE 1997-19711713	19970320
JP 2001525108	T2	20011204	JP 1998-54843	19980318
US 6335480	B1	20020101	US 1999-381192	19991124

PRIORITY APPLN. INFO.: DE 1997-19711713 A 19970320

WO 1998-EP1558 W 19980318

OTHER SOURCE(S): MARPAT 129:278462

IT 189363-47-1P

RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)

(hole-conducting compound for electrolyte redox system of photovoltaic cell)

RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)

AB Detectors for short wavelength electromagnetic radiation (e.g., UV and x-ray radiation) are described which employ charge transfer layers incorporating hole-conducting materials. The hole-conducting materials are preferably amorphous solids, especially spiro compds. such as spirofluorene derivs.

ACCESSION NUMBER: 1998:314587 CAPLUS

DOCUMENT NUMBER: 129:21312

TITLE: Radiation detector

INVENTOR(S): Salbeck, Josef; Graetzel, Michael

PATENT ASSIGNEE(S): Hoechst A.-G., Germany

SOURCE: Ger. Offen., 20 pp. CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19646411	A1	19980514	DE 1996-19646411	19961111
WO 9821764	A1	19980522	WO 1997-EP6050	19971103

W: JP, US

RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,

SE

EP 947006	A1	19991006	EP 1997-948860	19971103
EP 947006	B1	20030903		

R: CH, DE, FR, GB, IT, LI

JP 2001503570	T2	20010313	JP 1998-522108	19971103
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PRIORITY APPLN. INFO.: DE 1996-19646411 A 19961111

WO 1997-EP6050 W 19971103

OTHER SOURCE(S): MARPAT 129:21312

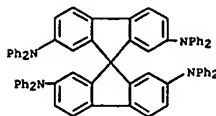
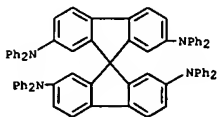
IT 189363-47-1P

RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(radiation detectors with charge transfer layers incorporating hole-conducting materials)

RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



AB An electroluminescent device whose electroluminescence spectrum does not overlap with the absorption spectrum, containing at least two organic layers

between 2 electrodes, is characterized by: (a) 2 adjacent organic layers, each having an optical band gap of at least 2.5 eV; and (b) the wavelength ( $\lambda_{max}$ , corresponding to an energy  $E_{max}$ ) at which the electroluminescence has a maximum is in a region corresponding to the energy difference  $\Delta E$  (ionization potential of the 1st organic layer minus electron affinity of the 2nd organic layer), and  $E_{max} \leq 2.5$  eV.

ACCESSION NUMBER: 1998:314575 CAPLUS

DOCUMENT NUMBER: 129:21311

TITLE: Electroluminescent device

INVENTOR(S): Spreitzer, Hubert; Lupo, Donald; Schenk, Hermann; Yu, Nu

PATENT ASSIGNEE(S): Hoechst A.-G., Germany

SOURCE: Ger. Offen., 10 pp. CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19646119	A1	19980514	DE 1996-19646119	19961108
WO 9821758	A2	19980522	WO 1997-EP6004	19971030
WO 9821758	A3	19980702		

W: CA, CN, JP, KR, MX

RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,

SE

EP 946995	A2	19991006	EP 1997-950052	19971030
R: DE, FR, GB, NL	A	19991124	CN 1997-199548	19971030
CN 1236486	A	19991124	CN 1997-199548	19971030
JP 2001504629	T2	20010403	JP 1998-522103	19971030
KR 2000053102	A	20000825	KR 1999-704026	19990506

PRIORITY APPLN. INFO.: DE 1996-19646119 A 19961108

WO 1997-EP6004 W 19971030

L10 ANSWER 42 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Spiro-linkage is used to modify the steric demand of low mol. organic compds. to improve their processability and morphol. stability, while their electronic properties are retained. These spiro-linked compds. form stable nonpolymeric organic glasses with high glass transition temps., usually associated with amorphous polymers. High quality amorphous films with high morphol. stability can be prepared with these spiro-linked luminescent or charge transport materials by conventional spin-coating techniques as well as by vapor deposition. Based on these spiro-compds., blue electroluminescence devices with high color purity, high brightness and low turn-on voltage are presented. A blue light-emitting two-layer device, fabricated by combining a hole transporting spiro-TAD with an electron transporting spiro-PBD, shows a turn-on voltage at 2.7 V and a luminance of 500 cd/m<sup>2</sup> at 5 V.

ACCESSION NUMBER: 1998:57733 CAPLUS  
 DOCUMENT NUMBER: 128:210265  
 TITLE: Low molecular organic glasses for blue electroluminescence  
 AUTHOR(S): Salbeck, J.; Yu, N.; Bauer, J.; Weissortel, F.; Bestgen, H.  
 CORPORATE SOURCE: Ackermannweg 10, Max-Planck-Institute for Polymer Research, D-55128, Mainz, Germany  
 SOURCE: Synthetic Metals (1997), 91(1-3), 209-215  
 CODEN: SYMEDZ; ISSN: 0379-6779  
 PUBLISHER: Elsevier Science S.A.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 43 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Spiro-linkage of low-mol.-weight entities as a new structural concept for the design of new active materials for electroluminescent applications is presented. These spiro-linked compds. result in nonpolymeric organic glasses with high thermal stability as can be derived from their high glass transition temps. (T<sub>g</sub>), and characterized by DSC. Blue emitters based on spiro-linked oligophenyls are presented. These compds. are soluble in common organic solvents and show high photoluminescence quantum efficiency in the solid state and high morphol. stability with glass transition temps. >250°. Charge transport materials based on spiro-linked versions of 2-(4-biphenyl)-5-(4-tert-butylphenyl)-1,3,4-oxadiazole (PBD) for electron transport, and spiro-linked versions of triphenyldiamine derivs. (TPD) for hole transport show improved morphol. properties with nearly unchanged electronic properties compared to the parent compds. High quality amorphous films can be prepared with the spiro compds. by vapor deposition as well as by simple spin coating.

ACCESSION NUMBER: 1997:760087 CAPLUS  
 DOCUMENT NUMBER: 128:41356  
 TITLE: Spiro-linked compounds for use as active materials in organic light emitting diodes  
 AUTHOR(S): Salbeck, Josef; Weissortel, Frank; Bauer, Jacqueline  
 CORPORATE SOURCE: Max-Planck-Inst. Polymer Research, Mainz, D-55128, Germany  
 SOURCE: Macromolecular Symposia (1998), 125(Organic Light-Emitting Materials and Devices), 121-132  
 CODEN: MSYMEC; ISSN: 1022-1360  
 PUBLISHER: Huethig & Wepf Verlag  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

L10 ANSWER 44 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Spiro-linked materials were synthesized and investigated. Blue-emitting luminescent materials comprising sym. spiro-linked oligo-phenyls up to the deciphenyls were prepared. Materials with charge transport properties were also prepared. The materials form stable glasses with high glass transition temps. Amorphous films of the materials can be prepared by both spin-coating and vapor deposition processes, and application to LEDs is indicated.

ACCESSION NUMBER: 1997:224275 CAPLUS  
 DOCUMENT NUMBER: 126:322720  
 TITLE: Spiro linked compounds as active materials in organic light emitting diodes  
 AUTHOR(S): Salbeck, J.; Bauer, J.; Weissortel, F.  
 CORPORATE SOURCE: Corp. Res., Hoechst Ag, Mainz, D-55128, Germany  
 SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1997), 38(1), 349-350  
 CODEN: ACPPAY; ISSN: 0032-3934  
 PUBLISHER: American Chemical Society, Division of Polymer Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English



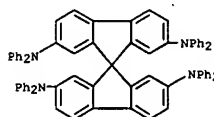
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L10 ANSWER 1 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The invention relates to a simple and economical method to manufacture an organic electroluminescent display without using shadow masks to achieve improved service life, light efficiency, and low energy consumption.  
 ACCESSION NUMBER: 2005:70337 CAPLUS  
 DOCUMENT NUMBER: 142:144366  
 TITLE: Display based on organic light-emitting diode (OLED) and procedure for its production  
 INVENTOR(S): Humbs, Werner  
 PATENT ASSIGNEE(S): Samsung SDI Co., Ltd., S. Korea  
 SOURCE: Ger. Offen., 12 pp.  
 CODEN: GWXXBX  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10331109	A1	20050127	DE 2003-10331109	20030704
PRIORITY APPLN. INFO.:			DE 2003-10331109	20030704

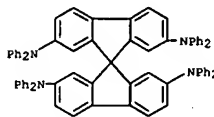
IT 189363-47-1, 2,2',7,7'-Tetrakis(diphenylamino)-9,9'-spirobifluorene  
 RL: DEV (Device component use); USES (Uses)  
 (display based on organic light-emitting diode (OLED) and procedure for its production)

RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



L10 ANSWER 3 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The authors demonstrate high-efficiency organic light-emitting diodes by incorporating a double-emission layer (D-EML) into p-i-n-type cell architecture. The D-EML is comprised of two layers with ambipolar transport characteristics, both doped with the green phosphorescent dye tris(phenylpyridine)iridium. The D-EML system of two bipolar layers leads to an expansion of the exciton generation region. Due to its self-balancing character, accumulation of charge carriers at the outer interfaces is avoided. Thus, a power efficiency of approx. 77 lm/W and an external quantum efficiency of 19.3% are achieved at 100 cd/m2 with an operating voltage of only 2.65 V. More importantly, the efficiency decays only weakly with increasing brightness, and a power efficiency of 50 lm/W is still obtained even at 4000 cd/m2.  
 ACCESSION NUMBER: 2004:913285 CAPLUS  
 DOCUMENT NUMBER: 142:122666  
 TITLE: High-efficiency and low-voltage p-i-n electrophosphorescent organic light-emitting diodes with double-emission layers  
 AUTHOR(S): He, Gufeng; Pfeiffer, Martin; Leo, Karl; Hofmann, Michael; Birnstock, Jan; Pudzich, Robert; Salbeck, Josef  
 CORPORATE SOURCE: Institut für Angewandte Photophysik, Technische Universität Dresden, Dresden, D-01062, Germany  
 SOURCE: Applied Physics Letters (2004), 85(17), 3911-3913  
 CODEN: APPLAB; ISSN: 0003-6951  
 PUBLISHER: American Institute of Physics  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 189363-47-1  
 RL: DEV (Device component use); PRP (Properties); USES (Uses)  
 (high-efficiency and low-voltage p-i-n electrophosphorescent organic light-emitting diodes with double-emission layers)

RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



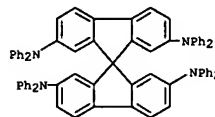
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 2 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The title transistors are prepared with a 1st contact, a 1st organic semiconductor layer, a comb-shaped or meshed 2nd contact, a 2nd organic semiconductor layer, and a 3rd contact, formed successively on a substrate, wherein a charge injection layer and/or charge transport layer is provided between the 1st contact and the 1st organic semiconductor layer.  
 The charge injection layer is made of an organic semiconductor material capable to inject charges such as m-MTDATA, CuPc, PEDOT, or PSS. Charge transport layer is made of an organic semiconductor material capable to transport charges such as  $\alpha$ -NPD, TPD, or Spiro-TAD.  
 ACCESSION NUMBER: 2004:1019096 CAPLUS  
 DOCUMENT NUMBER: 141:430739  
 TITLE: Vertical organic transistors for increased electric current density and electron mobility  
 INVENTOR(S): Iechi, Hiroyuki  
 PATENT ASSIGNEE(S): Ricoh Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004335557	A2	20041125	JP 2003-125877	20030430
PRIORITY APPLN. INFO.:			JP 2003-125877	20030430

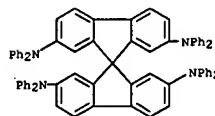
IT 189363-47-1  
 RL: PRP (Properties)  
 (charge transfer film; vertical organic transistors for increased elec. c.d. and electron mobility)

RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



L10 ANSWER 4 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB A phenomenon in which the electroluminescence from an organic light-emitting diode is suppressed by the absorption of visible light is reported. This at-least partially reversible degradation has a recovery time measured in days at a temperature of 20 °C. The absorbed light affects both the I-V characteristics of the device and the electroluminescent quantum efficiency. The degradation is first order in exposure intensity and has been observed in red, green, and blue devices with exposure to as little as 1 W/cm2 of green laser light.  
 ACCESSION NUMBER: 2004:793788 CAPLUS  
 DOCUMENT NUMBER: 142:29555  
 TITLE: Reversible photodegradation of organic light-emitting diodes  
 AUTHOR(S): Kobrin, P.; Fisher, R.; Gurrola, A.  
 CORPORATE SOURCE: Rockwell Scientific Company, Thousand Oaks, CA, 91360, USA  
 SOURCE: Applied Physics Letters (2004), 85(12), 2385-2387  
 CODEN: APPLAB; ISSN: 0003-6951  
 PUBLISHER: American Institute of Physics  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 189363-47-1  
 RL: DEV (Device component use); USES (Uses)  
 (hole-transporting layer; reversible photodegradn. of organic light-emitting diodes employing)

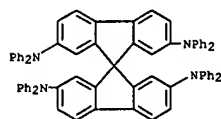
RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 5 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN  
AB Organic light-emitting diodes with ferromagnetic contacts are fabricated, and their emission intensity is studied at room temperature for parallel and antiparallel magnetization configuration of anode and cathode. Sweeping the magnetic field applied parallel to the electrode allows the magnetization of the two electrodes to be switched independently. The electroluminescence intensity for the antiparallel magnetic configuration is found to be enhanced as compared to the parallel one. We show that this increase is not evidence of spin injection but is a consequence of the magnetic-field dependence of the electroluminescence intensity combined with magnetic stray fields from the electrodes.

ACCESSION NUMBER: 2004:728910 CAPLUS  
DOCUMENT NUMBER: 141:385789  
TITLE: Hysteretic electroluminescence in organic light-emitting diodes for spin injection  
AUTHOR(S): Salis, G.; Alvarado, S. F.; Tschudy, M.;  
Brunschwiler, T.; Allenspach, R.  
CORPORATE SOURCE: Zurich Research Laboratory, IBM Research, Rueschlikon, 8803, Switz.  
SOURCE: Physical Review B: Condensed Matter and Materials Physics (2004), 70(8), 085203/1-085203/6  
CODEN: PRMDQ; ISSN: 0163-1829  
PUBLISHER: American Physical Society  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 189363-47-1, 2,2',7,7'-Tetrakis(diphenylamino)-9,9'-spirobifluorene  
RL: DEV (Device component use); USES (Uses)  
(hole transporting material; hysteretic electroluminescence in organic light-emitting diodes with ferromagnetic contacts for spin injection)  
RN 189363-47-1 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



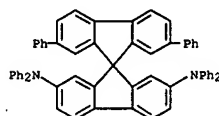
REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L10 ANSWER 6 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN  
AB The compns. contain (A) compds. having peaks at 475-600 nm in fluorescent spectra of their solid films and (B) compds. showing the sum of areas (intensities) <20% at <500 nm and >600 nm, or at <500 nm based on total areas (intensities) at 400-800 nm in fluorescent spectrum of solid films comprising A and 5% B. Organic electroluminescent devices having emitter layers containing the compns. containing

1:0.1 perylene derivative and diketopyrrolopyrrole derivative showed high luminescence intensity and good durability in repeated use.  
ACCESSION NUMBER: 2004:587037 CAPLUS  
DOCUMENT NUMBER: 141:131068  
TITLE: Electroluminescent compositions, and their organic electroluminescent devices emitting light from green to yellow  
INVENTOR(S): Onikubo, Shunichi; Yauchi, Hiroyuki; Yagi, Tamao; Kaneko, Tetsuya; Tanaka, Hiroaki; Takada, Yasuyuki  
PATENT ASSIGNEE(S): Toyo Ink Mfg. Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 67 pp.  
CODEN: JKOXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004206893	A2	20040722	JP 2002-371262	20021224
PRIORITY APPLN. INFO.:			JP 2002-371262	20021224

IT 724789-36-0  
RL: DEV (Device component use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(dopant; electroluminescent compns. for organic electroluminescent devices showing high luminescence intensity and durability in repeated use)  
RN 724789-36-0 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N',2',7'-hexaphenyl- (9CI) (CA INDEX NAME)



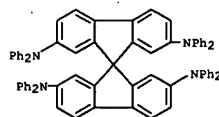
L10 ANSWER 7 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN  
AB Electroluminescent devices are described which comprise a first electrode, a layer of a first electroluminescent metal complex or organo metallic complex, a layer of a second metal complex or organo metallic complex and a second electrode and in which the band gap of the second electroluminescent metal complex or organo metallic complex is larger than the band gap of the first electroluminescent metal complex or organo metallic complex.

ACCESSION NUMBER: 2004:569885 CAPLUS  
DOCUMENT NUMBER: 141:130990  
TITLE: Electroluminescent materials based on metal complexes or organometallic complexes and devices employing the electroluminescent materials  
INVENTOR(S): Kathirgamanathan, Poopathy; Kandappa, Vijendra; Ganeshamurugan, Subramaniam; Paramaswara, Gnanamoly  
PATENT ASSIGNEE(S): Elam-T Limited, UK  
SOURCE: PCT Int. Appl., 59 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004058912	A2	20040715	WO 2003-GB5663	20031223
WO 2004058912	A3	20041229		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,			
TG				
PRIORITY APPLN. INFO.:			GB 2002-30074	A 20021224
			GB 2002-30077	A 20021224

IT 189363-47-1D, derivs., metal complexes  
RL: DEV (Device component use); USES (Uses)  
(electroluminescent materials based on metal complexes or organometallic complexes and devices employing electroluminescent materials)  
RN 189363-47-1 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)

L10 ANSWER 7 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN (Continued)



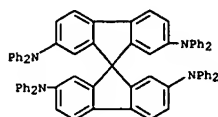
L10 ANSWER 8 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN

AB Organic electroluminescent devices are described in which the emitting layer consists of a mixture of 21 hole-transporting material and 21 emitting material in a weight ratio (hole-transporting material:emitting material) of 1:99 to 99:1 and that 21 of the substances contains 21 spiro-9,9'-bifluorene unit. Spiro-9,9'-bifluorene derivs. suitable for use in electroluminescent devices are also described.

ACCESSION NUMBER: 2004:569984 CAPLUS  
DOCUMENT NUMBER: 141:131054  
TITLE: Organic electroluminescent elements and spirobifluorene derivatives useful in them  
INVENTOR(S): Vestweber, Horst; Gerhard, Anja; Stoessel, Philipp; Spreitzer, Hubert  
PATENT ASSIGNEE(S): Covion Organic Semiconductors GmbH, Germany  
SOURCE: PCT Int. Appl., 30 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004058911	A2	20040715	WO 2003-EP13927	20031209
W: CN, JP, KR, US RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
PRIORITY APPL. INFO.: DE 2002-10261545 A 20021223				

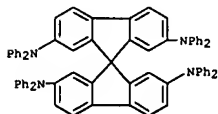
OTHER SOURCE(S): MARPAT 141:131054  
IT 189363-47-1  
RL: DEV (Device component use); USES (Uses)  
(organic electroluminescent elements with emitting layers formed from hole transporting-emitting material mixts. and spirobifluorene derivs. useful in them)  
RN 189363-47-1 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N''',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



L10 ANSWER 9 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

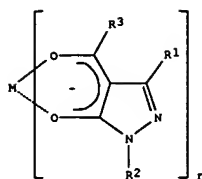
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD,

TG  
PRIORITY APPL. INFO.: GB 2002-28335 A 20021205  
OTHER SOURCE(S): MARPAT 141:61840  
IT 189363-47-1D, deriva., metal complexes  
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)  
(electroluminescent materials and devices based on metal complexes)  
RN 189363-47-1 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N''',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L10 ANSWER 9 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
GI



AB Electroluminescent compds. are described by formula (I) where M is a metal other than Al; n is the valency of M; R1, R2 and R3 which may be the same or different are selected from hydrogen, hydrocarbyl groups, substituted and unsubstituted aliphatic groups, substituted and unsubstituted aromatic, heterocyclic and polycyclic ring structures, fluorocarbons such as trifluoromethyl groups, halogens such as fluorine or thiophenyl groups or nitrile; R1, and R3 can also be form ring structures and R1, R2 and R3 can be copolymerizable with a monomer, e.g. styrene. Electroluminescent device comprising the compound of formula (I) in the luminescent layer are also discussed. Thus, metal complex of 1-phenyl-3-methyl-4-trimethylacetyl-pyrazol-5-one were prepared and characterized.

ACCESSION NUMBER: 2004:493812 CAPLUS  
DOCUMENT NUMBER: 141:61840  
TITLE: Electroluminescent materials and devices based on metal complexes of 1-phenyl-3-methyl-4-trimethylacetyl-pyrazol-5-one  
INVENTOR(S): Kathirgamanathan, Poopathy; Surendrakumar, Sivagnanasundaram; Gemmell, Patrick; Ganeshamurugan, Subramaniam; Kumaravel, Muttulingam; Partheespan, Arumugam; Suresh, Sutheralingam; Selvaranjan, Selvadurai  
PATENT ASSIGNEE(S): Elam-T Limited, UK  
SOURCE: PCT Int. Appl., 59 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004050793	A1	20040617	WO 2003-GB5303	20031205
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,				

L10 ANSWER 10 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN

AB Green phosphorescent organic light-emitting devices (OLEDs) employing tris(2-phenylpyridine) Ir doped into a wide energy gap hole transport host were studied. N,N,N',N'-tetrakis(4-methoxyphenyl)-benzidine doped with 2,3,5,6-tetrafluoro-7,7,8,8-tetracyanoquinodimethane is used as a hole injection and transport layer, 4,7-diphenyl-1,10-phenanthroline and Cs are coevaporated as a n-doped electron transport layer, and an intrinsic emission layer is sandwiched between these 2 doped layer. Such a p-i-n device features efficient carrier injection from both contacts into the doped transport layers and low ohmic losses in these highly conductive layers. Thus, low operating voltages are obtained compared to conventional undoped OLEDs. By modifying the device structure, the authors optimized the carrier balance in the emission layer and at its interfaces. For the optimized device, the maximum power efficiency is 53 lm/W, and a luminance of 1000 cd/m2 is reached at 3.1 V with a power efficiency of 45 lm/W.

ACCESSION NUMBER: 2004:380872 CAPLUS  
DOCUMENT NUMBER: 141:113740  
TITLE: Very high-efficiency and low voltage phosphorescent organic light-emitting diodes based on a p-i-n junction  
AUTHOR(S): He, Gufeng; Schneider, Oliver; Qin, Dashan; Zhou, Xiang; Pfeiffer, Martin; Leo, Karl  
CORPORATE SOURCE: Institut fuer Angewandte Photophysik, Technische Universitaet Dresden, Dresden, D-01062, Germany  
SOURCE: Journal of Applied Physics (2004), 95(10), 5773-5777  
CODEN: JAPIAU; ISSN: 0021-8979  
PUBLISHER: American Institute of Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L10 ANSWER 11 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN

AB Organic light-emitting devices which comprise a substrate; an anode and a cathode disposed over the substrate; a luminescent layer disposed between the anode and the cathode are described in which the luminescent layer includes a host and 21 dopant; the host including a solid organic material comprising a mixture of 22 components including a first component that is an organic compound capable of transporting either electrons and/or holes and of forming both monomer state and an aggregate state and a second component of that is an organic compound that upon mixing with the first host component is capable of forming a continuous and substantially pin-hole-free layer, while the dopant of is selected to produce light from the light-emitting device. The first component is capable of forming an aggregate state either in the ground electronic state or in an excited electronic state that results in a different absorption or emission spectrum or both relative to the absorption or emission spectrum or both of the monomer state, resp., or of forming an aggregate state whose presence results in a quantum yield of luminescence of the monomer state being different relative to the quantum yield of luminescence of the monomer state in the absence of the aggregate state. The aggregate state may be crystalline

ACCESSION NUMBER: 2004:331637 CAPIUS  
DOCUMENT NUMBER: 140:365374  
TITLE: Organic light-emitting diode devices with improved operational stability  
INVENTOR(S): Jarikov, Viktor V.  
PATENT ASSIGNEE(S): Eastman Kodak Company, USA  
SOURCE: U.S. Pat. Appl. Publ., 108 pp., Cont.-in-part of U.S. Ser. No. 131,801, abandoned.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 2  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004076853	A1	20040422	US 2003-634324	20030805
JP 2003347058	A2	20031205	JP 2003-118497	20030423
CN 1453886	A	20031105	CN 2003-124026	20030424

PRIORITY APPLN. INFO.: US 2002-131801 B2 20020424

OTHER SOURCE(S): MARPAT 140:365374  
IT 497157-27-4  
RL: DEV (Device component use); USES (Uses)  
(organic light-emitting diode devices using luminescent mixts.)  
RN 497157-27-4 CAPIUS  
CN 9,9'-spirobi[9H-fluorene]-2,7'-bis([1,1'-biphenyl]-4-yl)-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)

L10 ANSWER 12 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN

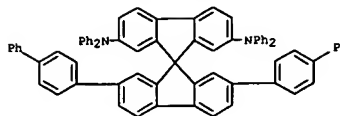
AB The authors report on the fabrication of organic phototransistors based on the spiro-conjugated mol.  
2,7-bis-(N,N'-diphenylamino)-2',7'-bis(biphenyl-4-yl)-9,9'-spirobifluorene. Intramol. charge transfer increases charge carrier d., providing the amplification effect. The sensitivity is better than 1 A/W for UV light at 370 nm, making the device interesting for sensor applications.

ACCESSION NUMBER: 2004:261559 CAPIUS  
DOCUMENT NUMBER: 141:15266  
TITLE: Organic phototransistor based on intramolecular charge transfer in a bifunctional spiro compound  
AUTHOR(S): Saragi, Tobat P. I.; Pudzich, Robert; Fuhrmann, Thomas; Salbeck, Josef  
CORPORATE SOURCE: Department of Science and Center for Nanostructure Science and Technology, Macromolecular Chemistry and Molecular Materials, University of Kassel, Kassel, D 34109, Germany  
SOURCE: Applied Physics Letters (2004), 84(13), 2334-2336  
CODEN: APPLAB; ISSN: 0003-6951  
PUBLISHER: American Institute of Physics  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS

FORMAT

RECORD. ALL CITATIONS AVAILABLE IN THE RE

L10 ANSWER 11 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN (Continued)



L10 ANSWER 13 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN

AB The authors present a comparison of different mol. glasses based on the spiro-concept with respect to their photoemission properties. The absorption and emission spectra as well as the photoluminescence quantum yields in solution were characterized. For thin amorphous films, prepared by vacuum vapor deposition, the authors examined amplified spontaneous emission (ASE) by optical pumping with picosecond pulses at 337 nm. Efficient ASE emission with thresholds of down to 1 μJ/cm<sup>2</sup> was observed

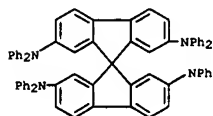
ACCESSION NUMBER: 2003:861938 CAPIUS  
DOCUMENT NUMBER: 141:196735  
TITLE: Highly efficient light emitters based on the spiro concept  
AUTHOR(S): Spehr, Till; Pudzich, Robert; Fuhrmann, Thomas; Salbeck, Josef  
CORPORATE SOURCE: Department of Science and Center for Interdisciplinary

Nanostructure Science and Technology (CINSaT), Macromolecular Chemistry and Molecular Materials, University of Kassel, Kassel, D-34109, Germany  
Organic Electronics (2003), 4(2-3), 61-69  
CODEN: OERLAU; ISSN: 1566-1199  
Elsevier Science B.V.

PUBLISHER: Journal  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 189363-47-1  
RL: PEP (Physical, engineering or chemical process); PRP (Properties);

PYP (Physical process); PROC (Process)  
(highly efficient light emitters based on spiro concept and their optical properties)

RN 189363-47-1 CAPIUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)

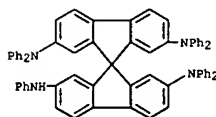


REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS  
FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

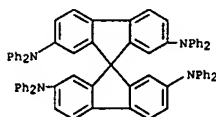
L10 ANSWER 14 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The invention refers to an organic electroluminescent materials suitable  
 for spin coating, comprising a calixarene or calixresorciarene derivative  
 with an organic luminescent group and/or an organic charge transport group, such  
 as 4-(1-(2,2-diphenylvinyl)-biphenyl-2-phenylvinyl)phenyl.  
 ACCESSION NUMBER: 2003:472573 CAPLUS  
 DOCUMENT NUMBER: 139:60162  
 TITLE: Organic electroluminescent material using calixarene  
 or calixresorciarene derivative  
 INVENTOR(S): Momoda, Junji; Kawabata, Yuichiro; Otani, Toshiaki  
 PATENT ASSIGNEE(S): Tokuyama Corporation, Japan  
 SOURCE: PCT Int. Appl., 140 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003050201	A1	20030619	WO 2002-JP12821	20021206
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRIORITY APPL. INFO.:		JP 2001-378448	A	20011212
		JP 2002-120827	A	20020423
		JP 2002-208112	A	20020717

OTHER SOURCE(S): MARPAT 139:60162  
 IT 546634-30-4  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (organic electroluminescent material using calixarene or calixresorciarene derivative)  
 RN 546634-30-4 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N'''-heptaphenyl- (9CI) (CA INDEX NAME)



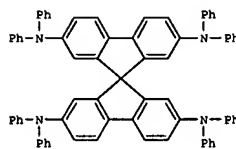
L10 ANSWER 15 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Systematic studies are a prerequisite for a detailed understanding of the internal processes in organic semiconductors and devices, which is of great importance for optimizing organic light-emitting diode performance. Devices based on small mols. are especially well-suited for introducing thin layers (<10 nm), which in turn can be used as anal. and sensing tools. Combinatorial methods were used to fabricate matrixes of 10\*10 individual devices on single substrate to ensure reliable and reproducible datasets. Selected examples are presented to illustrate the strength of this method. These expts. include layer thickness variations in a multilayer system to optimize device performance. A thin metallic and dye-doped sensing layer is inserted into the device to derive the distribution of the elec. field and exciton d., resp. By thickness-dependent luminescent measurements insight is gained into luminescence quenching near interfaces.  
 ACCESSION NUMBER: 2003:406151 CAPLUS  
 DOCUMENT NUMBER: 139:171044  
 TITLE: Investigation of internal processes in organic light-emitting devices using thin sensing layers  
 AUTHOR(S): Beierlein, T. A.; Ruhstaller, B.; Gundlach, D. J.; Riel, H.; Karg, S.; Rost, C.; Riess, W.  
 CORPORATE SOURCE: IBM Research, Zurich Research Laboratory.  
 Rueschlikon, CH-8803, Switz.  
 SOURCE: Synthetic Metals (2003), 138(1-2), 213-221  
 CODEN: SYMED2; ISSN: 0379-6779  
 PUBLISHER: Elsevier Science B.V.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 189363-47-1  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)  
 (internal processes in organic LEDs using thin sensing layers containing)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N'''-octaphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE  
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L10 ANSWER 14 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)  
 REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 16 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 GI

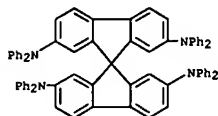


AB A process for the preparation of tertiary amines (ArNR1R2) via the nickel or palladium mediated coupling of secondary amines (H-NR1R2) with aroms. (Ar-(X)n) [Ar = (un)substituted aromatic, heteroarom.; R1, R2 = trichloroethylene, (un)substituted alkyl; X = reactive leaving group (sic); n = 1-10] in the presence of a base and a phosphine is disclosed. For example, to a degassed suspension of 2,2',7,7'-tetrabromo-9,9'-spirobifluorene (50 mmol), sodium tert-butoxide (315 mmol) in toluene (400 mL) was added bis(1,1-dimethylethyl)phosphinous chloride (2 mmol). After 5 min, palladium (II) acetate (1 mmol) and diphenylamine (225 mmol) was added sequentially, and the reaction heated at reflux for 2 h. The reaction was cooled, and after aqueous work-up provided bifluorenyl arylamine I in 97% yield. The tertiary amines (ArNR1R2) are claimed useful as reagents or intermediates for pharmaceuticals, agrochems., electronics chems. etc.  
 ACCESSION NUMBER: 2003:356399 CAPLUS  
 DOCUMENT NUMBER: 138:368629  
 TITLE: Preparation of spiro-9,9'-bifluorenylarylamines and related compounds via the nickel or palladium mediated coupling of secondary amines and aromatics  
 INVENTOR(S): Stoessel, Philipp; Spreitzer, Hubert; Becker, Heinrich  
 PATENT ASSIGNEE(S): Covion Organic Semiconductors G.m.b.H., Germany  
 SOURCE: PCT Int. Appl., 30 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003037844	A1	20030508	WO 2002-EP11942	20021025
W: CN, JP, KR, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
DE 10153450	A1	20030522	DE 2001-10153450	20011030

L10 ANSWER 16 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)  
 EP 1442007 A1 20040804 EP 2002-783005 20021025  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,  
 IE, FI, CY, TR, BG, CZ, EE, SK  
 PRIORITY APPLN. INFO.: DE 2001-10153450 A 20011030  
 WO 2002-EP11942 W 20021025

OTHER SOURCE(S): CASREACT 138:368629  
 IT 189363-47-1P  
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP  
 (Preparation)  
 (product: preparation of spirobifluorenylarylamines and related  
 compds. via the nickel or palladium mediated coupling of secondary amines and  
 aroms.)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
 N,N,N',N',N'',N'',N''',N''''-  
 octaphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS  
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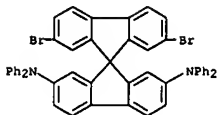
L10 ANSWER 17 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Spirobifluorene-type unit-containing conjugated polymer, useful in  
 optoelectronic devices, are manufactured containing  $\geq 1$  addnl. unit that  
 (a)

improves the insertion or transportation of holes, (b) improves the  
 insertion or transportation of electrons, (c) accomplishes both (a) and  
 (b), and (d) exhibits phosphorescence. A typical polymer was  
 manufactured by  
 polymerization of 1.768 g 2,7-dibromo-2',3',6',7'-tetrakis(2-  
 methylbutoxy)spirobifluorene with 0.183 g N,N'-bis(4-bromophenyl)-N,N'-  
 bis(4-tert-butylphenyl)benzidine by the Yamamoto coupling in PhMe-DMF  
 mixture in the presence of 1,5-cyclooctadiene, Ni(COD)2, and  
 2,2'-bipyridyl.  
 ACCESSION NUMBER: 2003:202698 CAPLUS  
 DOCUMENT NUMBER: 138:238568  
 TITLE: Conjugated polymers containing spirobifluorene units  
 and the use thereof  
 INVENTOR(S): Becker, Heinrich; Treacher, Kevin; Spreitzer, Hubert;  
 Falcou, Aurelie; Stoessel, Philipp; Buesing, Arne;  
 Pazham, Amir  
 PATENT ASSIGNEE(S): Covion Organic Semiconductors G.m.b.H., Germany  
 SOURCE: PCT Int. Appl., 58 pp.  
 CODEN: FIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

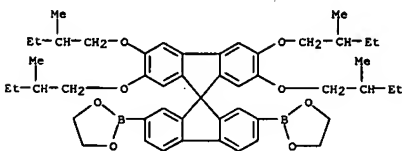
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003020790	A2	20030313	WO 2002-EP9628	20020829
WO 2003020790	A3	20030912		
W: CN, JP, KR, US				
RM: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
DE 10143353	A1	20030320	DE 2001-10143353	20010904
EP 1427768	A2	20040616	EP 2002-772227	20020829
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
PRIORITY APPLN. INFO.:			DE 2001-10143353	A 20010904
			WO 2002-EP9628	W 20020829

IT 501435-13-8P 501435-27-4P 501435-28-5P  
 501435-29-6P  
 RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
 (conjugated polymers containing spirobifluorene units and units that  
 phosphoresce for optoelectronic devices)  
 RN 501435-13-8 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine,  
 2',7'-dibromo-N,N,N',N'-tetraphenyl-  
 , polymer with 5,8-dibromo-2,3-diphenylquinoxaline, 2,7-dibromo-  
 2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] and  
 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-  
 diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 501434-80-6  
 CMF C49 H32 Br2 N2

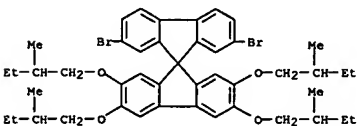
L10 ANSWER 17 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



CM 2  
 CRN 396123-43-6  
 CMF C49 H62 Br2 O8

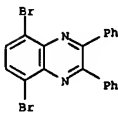


CM 3  
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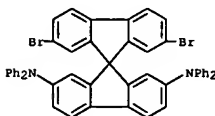


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 CMF C20 H12 Br2 N2

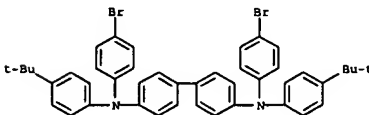
L10 ANSWER 17 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



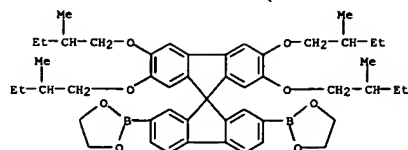
RN 501435-27-4 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine,  
 2',7'-dibromo-N,N,N',N'-tetraphenyl-  
 , polymer with N,N'-bis(4-bromophenyl)-N,N'-bis(4-(1,1-  
 dimethylethyl)phenyl)[1,1'-biphenyl]-4,4'-diamine,  
 2,7-dibromo-2',3',6',7'-  
 tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene] and  
 2,2'-[2',3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spirobi[9H-fluorene]-2,7-  
 diyl]bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 501434-80-6  
 CMF C49 H32 Br2 N2



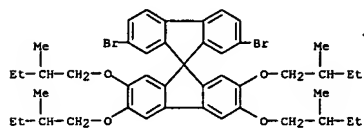
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 CMF C44 H42 Br2 N2



CM 3  
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 CMF C49 H62 Br2 O8

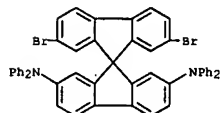


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CRN 395059-23-1  
CMF C45 H54 Br2 O4

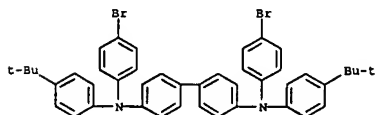
RN 501435-28-5 CAPLUS  
CN 9,9'-Spiro[9H-fluorene]-2,7-diamine,  
2',7'-dibromo-N,N,N',N'-tetraphenyl-  
polymer with N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl][1,1'-biphenyl]-4,4'-diamine and 2',7'-dibromo-2,3,6,7-tetrakis(2-methylbutoxy)-9,9'-spiro[9H-fluorene] (9CI) (CA INDEX NAME)

CM 1

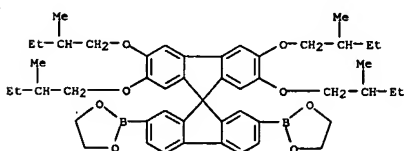
CRN 501434-80-6  
CMF C49 H32 Br2 N2

CM 2

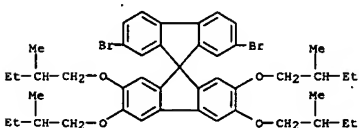
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CRN 463944-36-7  
CMF C44 H42 Br2 N2

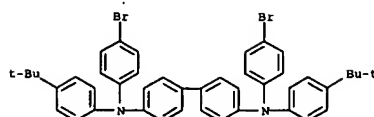
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CMF C49 H62 B2 O8

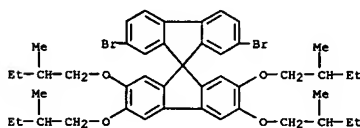
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CRN 395059-23-1  
CMF C45 H54 Br2 O4

CM 5

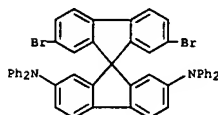
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CM 3

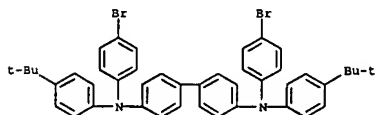
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CMF C45 H54 Br2 O4

RN 501435-29-6 CAPLUS  
CN 9,9'-Spiro[9H-fluorene]-2,7-diamine,  
2',7'-dibromo-N,N,N',N'-tetraphenyl-  
polymer with N,N'-bis(4-bromophenyl)-N,N'-bis[4-(1,1-dimethylethyl)phenyl][1,1'-biphenyl]-4,4'-diamine, 5,8-dibromo-2,3-diphenylquinoxaline,  
2,7-dibromo-2,3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spiro[9H-fluorene] and 2,2'-(2,3',6',7'-tetrakis(2-methylbutoxy)-9,9'-spiro[9H-fluorene]-2,7-diyl)bis[1,3,2-dioxaborolane] (9CI) (CA INDEX NAME)

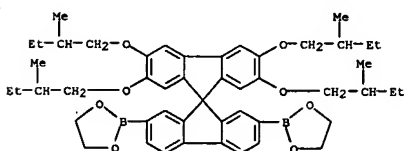
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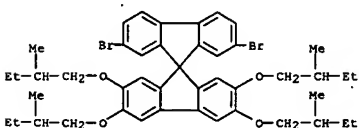
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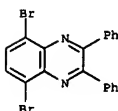
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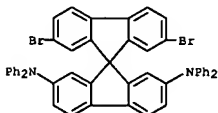
CRN 395059-23-1  
CMF C45 H54 Br2 O4

CM 5

CRN 94544-77-1  
CMF C20 H12 Br2 N2

IT 501434-80-6P, 2,7-Dibromo-2',7'-(N,N-diphenylamino)-9,9'-spirobifluorene  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation);  
RACT (Reactant or reagent)  
(monomer; conjugated polymers containing spirobifluorene units and units that phosphoresce for optoelectronic devices)

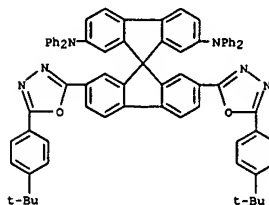
RN 501434-80-6 CAPLUS  
CN 9,9'-Spiro[9H-fluorene]-2,7-diamine,  
2',7'-dibromo-N,N,N',N'-tetraphenyl-  
(9CI) (CA INDEX NAME)





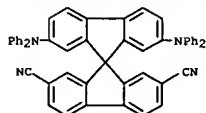
L10 ANSWER 18 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The authors demonstrate a general feature of organic films between a substrate and a deformable cladding layer: the capability of forming periodic structures by heating above the glass transition temperature of the organic film. This patterning process by self-organization is caused by the interplay of dispersion interactions and mech. stress which leads to spinodal deformation. The dynamic evolution of the structures was studied by time-resolved light diffraction. By pre-patterning the substrate, the direction of the waves can be controlled.  
 ACCESSION NUMBER: 2002:982842 CAPLUS  
 DOCUMENT NUMBER: 138:279587  
 TITLE: Spinodal patterning in organic-inorganic hybrid layer systems  
 AUTHOR(S): Muller-Wiegand, M.; Georgiev, G.; Oesterschulze, E.; Fuhrmann, T.; Salbeck, J.  
 CORPORATE SOURCE: Center of Interdisciplinary Nanostructure Science and Technology (CINaT), Institute of Technical Physics, University of Kassel, Kassel, D-34109, Germany  
 SOURCE: Applied Physics Letters (2002), 81(26), 4940-4942  
 CODEN: APPLAB; ISSN: 0003-6951  
 PUBLISHER: American Institute of Physics  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS  
 FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

L10 ANSWER 19 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Some 9,9'-spirobifluorene-bridged bipolar systems containing 1,3,4-oxadiazole-conjugated oligoaryl and triarylamine moieties have been synthesized, which exhibit remarkable solvent-polarity dependent fluorescence properties due to a highly efficient photoinduced electron transfer reaction.  
 ACCESSION NUMBER: 2002:884493 CAPLUS  
 DOCUMENT NUMBER: 138:189397  
 TITLE: Syntheses and spectroscopic studies of spirobifluorene-bridged bipolar systems; photoinduced electron transfer reactions  
 AUTHOR(S): Chien, Yuh-Yih; Wong, Ken-Tsung; Chou, Pi-Tai; Cheng, Yi-Ming  
 CORPORATE SOURCE: Department of Chemistry, National Taiwan University, Taichung, 106, Taiwan  
 SOURCE: Chemical Communications (Cambridge, United Kingdom) (2002), (23), 2874-2875  
 CODEN: CHCOFS; ISSN: 1359-7345  
 PUBLISHER: Royal Society of Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 OTHER SOURCE(S): CASREACT 138:189397  
 IT 497955-46-1  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (dye; preparation and spectroscopic studies of spirobifluorene-bridged bipolar dye)  
 RN 497955-46-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, 2',7'-bis[5-[(1,1-dimethylethyl)phenyl]-1,3,4-oxadiazol-2-yl]-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)

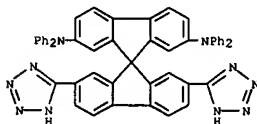


IT 497955-49-49 497955-50-79  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (intermediate; preparation and spectroscopic studies of spirobifluorene-bridged bipolar dye)  
 RN 497955-49-4 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-dicarbonitrile, 2',7'-bis(diphenylamino)- (9CI) (CA INDEX NAME)

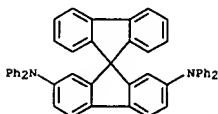
L10 ANSWER 19 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



RN 497955-50-7 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)

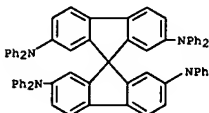


IT 244301-18-6  
 RL: PRP (Properties) (model compound; preparation and spectroscopic studies of spirobifluorene-bridged bipolar dye)  
 RN 244301-18-6 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)

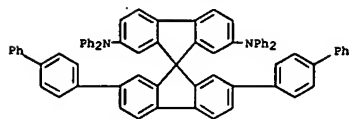


REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS  
 FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

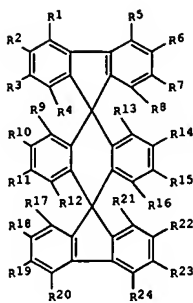
L10 ANSWER 20 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB The authors have studied the field-effect mobility of three kinds of low mol. weight spirolinked compds., 2,2',7,7'-tetrakis(diphenylamino)-9,9'-spirobifluorene (spiro-TAD), 2,2',7,7'-tetrakis(biphenyl-4-yl)-9,9'-spirobifluorene (spiro-60) and 2,7-bis-(N,N-diphenylamino)-2',7'-bis(biphenyl-4-yl)-9,9'-spirobifluorene (spiro-X2). The field-effect mobilities of these materials in the saturation region are  $8 + 10^{-4}$  cm<sup>2</sup>V<sup>-1</sup>s<sup>-1</sup>,  $5 + 10^{-5}$  cm<sup>2</sup>V<sup>-1</sup>s<sup>-1</sup> and  $4 + 10^{-4}$  cm<sup>2</sup>V<sup>-1</sup>s<sup>-1</sup> resp. The atomic force microscopy images show that films prepared from these materials are amorphous with a very smooth surface and the limited field-effect mobility is due to the intrinsic behavior of amorphous materials.  
 ACCESSION NUMBER: 2002:865208 CAPLUS  
 DOCUMENT NUMBER: 138:178651  
 TITLE: Field-effect mobility and morphology study in amorphous films of symmetric and unsymmetrical spiro-linked compounds  
 AUTHOR(S): Saragil, Tobat P. I.; Pudrich, Robert; Fuhrmann, Thomas; Salbeck, Josef  
 CORPORATE SOURCE: Macromolecular Chemistry and Molecular Materials Department of Physics, University of Kassel, Kassel, D 34109, Germany  
 SOURCE: Materials Research Society Symposium Proceedings (2002), 725(Organic and Polymeric Materials and Devices--Optical, Electrical and Optoelectronic Properties), 85-91  
 CODEN: MRSFPH; ISSN: 0272-9172  
 PUBLISHER: Materials Research Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 189363-47-1, 2,2',7,7'-Tetrakis(diphenylamino)-9,9'-spirobifluorene  
 RL: DEV (Device component use); PRP (Properties); USES (Uses) (spiro-TAD; field-effect mobility and morphol. in amorphous films of sym. and unsym. spiro-linked compds.)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N'''-octaphenyl- (9CI) (CA INDEX NAME)



IT 497157-27-4  
 RL: DEV (Device component use); PRP (Properties); USES (Uses) (spiro-X2; field-effect mobility and morphol. in amorphous films of sym. and unsym. spiro-linked compds.)  
 RN 497157-27-4 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, 2',7'-bis[5-[(1,1'-biphenyl)-4-yl]-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT



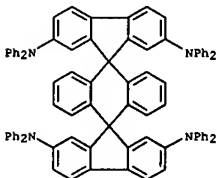
AB Double-spiro organic compds. are claimed which are described by the general formula I (R1-24 = independently selected substituents not all of which are H). Light-emitting, hole-transporting, and electron-transporting materials comprising the compds. are also described. Electroluminescent materials comprising the compds, including deposited films, methods for depositing the materials, and organic electroluminescent devices employing the materials, and method for fabricating the devices, are also described.

ACCESSION NUMBER: 2002:849756 CAPLUS  
DOCUMENT NUMBER: 137:360139  
TITLE: Double-spiro organic compounds and electroluminescent devices  
INVENTOR(S): Kim, Kong-Kyeum; Son, Se-Hwan; Yoon, Seok-Hee; Bae, Jae-Soon; Lee, Youn-Gu; Im, Sung-Gap; Kim, Ji-Eun; Lee, Jae-Chol  
PATENT ASSIGNEE(S): LG Chem, Ltd., S. Korea  
SOURCE: PCI Int. Appl., 117 pp.  
CODEN: PIXXDZ  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002082274	A1	20021107	WO 2002-KR458	20020318
W: CN, JP RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,				

PT, SE, TR				
KR 2002083614	A	20021104	KR 2001-23038	20010427
KR 2002083615	A	20021104	KR 2001-23039	20010427
US 2004023060	A1	20040205	US 2002-99781	20020314
EP 1294823	A1	20030326	EP 2002-705589	20020318
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
JP 2004529937	T2	20040930	JP 2002-585559	20020318
US 2004170863	A1	20040902	US 2003-718083	20031119
PRIORITY APPLN. INFO.:				
			KR 2001-23038	A 20010427
			KR 2001-23039	A 20010427
			US 2002-99781	A3 20020314
			WO 2002-KR458	W 20020318

OTHER SOURCE(S): MARPAT 137:360139  
IT 474688-52-3  
RL: DEV (Device component use); USES (Uses)  
(double-spiro organic compds. and electroluminescent devices using them)  
RN 474688-52-3 CAPLUS  
CN Dispiro[9H-fluorene-9,9'-(10'H)-anthracene-10',9'']-[9H]fluorene]-2,2'',7'',7'''-tetramine, N,N,N',N',N'',N''',N''',N''''-octaphenyl- (9CI)  
(CA INDEX NAME)



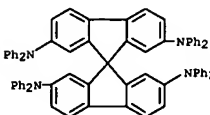
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

AB Organic light-emitting devices are described in which hole-transporting, light-emitting, and electron-transporting regions are joined by compositionally graded mixed regions. The devices avoid problems with interfaces between layers which are present in the conventional laminate structure. The devices may incorporate color conversion layers or color filters, and may be constructed to serve as displays. Electronic equipment (video cameras, digital cameras, image reproduction apparatus, portable computers, personal computers, and mobile telephones) employing the displays is also described.

ACCESSION NUMBER: 2002:638080 CAPLUS  
DOCUMENT NUMBER: 137:176925  
TITLE: Organic light emitting device and display device using the same  
INVENTOR(S): Seo, Satoshi; Yamazaki, Shunpei  
PATENT ASSIGNEE(S): Japan  
SOURCE: U.S. Pat. Appl. Publ., 45 pp.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002113546	A1	20020822	US 2002-81558	20020220
JP 2002324673	A2	20021108	JP 2002-43419	20020220
CN 1372434	A	20021002	CN 2002-105131	20020222
PRIORITY APPLN. INFO.:				
			JP 2001-45883	A 20010222

IT 189363-47-1  
RL: DEV (Device component use); USES (Uses)  
(organic light emitting devices with graded interfaces and electronic devices using them)  
RN 189363-47-1 CAPLUS  
CN 9,9'-Spiro[9H-fluorene]-2,2'',7'',7'''-tetramine, N,N,N',N',N'',N''',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



L10 ANSWER 23 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN

AB Charge transport materials are described which comprise 21 moiety represented by the general formula NAr3 (each Ar is independently selected

from (un)substituted aromatic or heteroarom. rings or fused or otherwise conjugated derivs. thereof; 21 Ar is derivatized with 21 ion-chelating groups selected from  $[-(CH_2CH_2O)nCH_2CH_2OCH_3]$ ,  $[-O(CH_2CH_2)nOCH_3]$ ,  $[-(CH_2CH(R)O)nCH_2CH_2OCH_3]$  and  $[-O(CH(R)CH_2)nOCH_3]$ ; n = 0-10, preferably 2-10, more preferably 2-4; R = (un)branched C1-10 alkyl, preferably C1-2 alkyl; and the ion chelating groups comprise side chains in oligomeric or polymeric structures). Charge-conducting films and tracks, electrooptical devices, photovoltaic cells, and electrochem. devices incorporating the materials are also described.

ACCESSION NUMBER: 2002:504888 CAPLUS

DOCUMENT NUMBER: 137:86923

TITLE: Electroactive polyarylamine-type compositions

INVENTOR(S): Holmes, Andrew Bruce; Park, Taiho

PATENT ASSIGNEE(S): Johnson Matthey Public Limited Company, UK

SOURCE: PCT Int. Appl., 53 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002051958	A1	20020704	WO 2001-GB5672	20011220
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
GB 2388370	A1	20031112	GB 2003-14223	20011220
PRIORITY APPLN. INFO.:			GB 2000-31634	A 20001223
			WO 2001-GB5672	W 20011220

IT 189363-47-1P, 2,2',7,7'-Tetrakis-(diphenylamino)-9,9'-

spirobifluorene

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

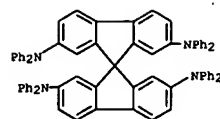
(charge-transporting ion chelating group-substituted arylamine charge transport materials and their use)

RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,

N,N,N',N',N'',N'',N''',N'''-octaphenyl- (9CI) (CA INDEX NAME)

L10 ANSWER 23 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



REFERENCE COUNT: 5

FORMAT

THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

L10 ANSWER 24 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN

AB The invention relates to substituted spiro compds. based on boron or aluminum and the use of the same in the electronics industry. Thus, lithiation of 2,7,2',7'-tetrabromo-9,9'-spirobifluorene with t-BuLi in

THF followed by treatment with fluorodimesitylborane gave 55-65% title spiro compound, 2,7,2',7'-tetrakis(dimesitylboryl)-9,9'-spirobifluorene, which

was used for organic light emitting device. The inventive compds. can be used as

electron transport material, material for blocking holes and/or host material in organic electroluminescent and/or phosphorescent devices, as electron transport material in photocopyers, as electron acceptor or transport material in solar cells, as charge transport material in organic

integrated circuits and in organic solid lasers or organic photodetectors

ACCESSION NUMBER: 2002:504795 CAPLUS

DOCUMENT NUMBER: 137:63354

TITLE: Spiro compounds based on boron or aluminum and the

use of the same in the electronics industry

INVENTOR(S): Stoessel, Philipp; Spreitzer, Hubert; Becker,

Heinrich; Drott, Jacqueline

PATENT ASSIGNEE(S): Covion Organic Semiconductors G.m.b.H., Germany

SOURCE: PCT Int. Appl., 28 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002051850	A1	20020704	WO 2001-EP15177	20011220
W: CN, JP, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
EP 1345948	A1	20030924	EP 2001-995707	20011220
EP 1345948	B1	20041013		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
JP 2004525878	T2	20040826	JP 2002-552944	20011220
US 2004063981	A1	20040401	US 2003-250593	20031023
PRIORITY APPLN. INFO.:			EP 2000-128292	A 20001222
			WO 2001-EP15177	W 20011220

OTHER SOURCE(S): CASREACT 137:63354; MARPAT 137:63354

IT 189363-47-1

RL: PEP (Physical, engineering or chemical process); FRP (Properties);

PYP (Physical process); PROC (Process)

(use in electronics industry)

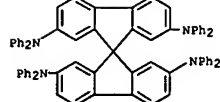
RN 189363-47-1 CAPLUS

CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,

N,N,N',N',N'',N'',N''',N'''-

octaphenyl- (9CI) (CA INDEX NAME)

L10 ANSWER 24 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



REFERENCE COUNT: 2

FORMAT

THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

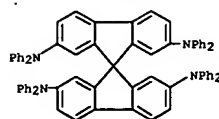
L10 ANSWER 25 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN  
 AB Light emitting devices are described which comprise at least a first layer comprising a first organic compound; and a second layer comprising a second organic compound which is different from the first organic compound, where a region or a mixed layer comprising the first organic compound and the second organic compound between the first layer and the second layer is provided for lowering energy barriers at interfaces between the organic layers. The devices may contain hole-injecting, hole-transporting, electron-transporting, electron-injecting and light-emitting layers as organic compound layers, and may have more than one regions or mixed layers.  
 Electronic devices employing the light-emitting devices are also discussed.  
 ACCESSION NUMBER: 2002:503505 CAPLUS  
 DOCUMENT NUMBER: 137:70359  
 TITLE: Organic light-emitting devices containing a region or a mixed layer provided for lowering energy barriers at interfaces between the organic layers, and electronic devices employing the light-emitting devices  
 INVENTOR(S): Seo, Satoshi; Yamazaki, Shunpei  
 PATENT ASSIGNEE(S): SEL Semiconductor Energy Laboratory Co., Ltd., Japan  
 SOURCE: Eur. Pat. Appl., 78 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1220339	A2	20020703	EP 2001-130487	20011220
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MX, CY, AL, TR				
TW 545080	B	20030801	TW 2001-90131393	20011218
SG 93298	A1	20021217	SG 2001-7839	20011219
US 2002121860	A1	20020905	US 2001-24699	20011221
JP 2002324680	A2	20021108	JP 2001-395213	20011226
CN 1362747	A	20020807	CN 2001-130274	20011228
PRIORITY APPLN. INFO.: JP 2000-400730 A 20001228				
JP 2001-45847 A 20010221				

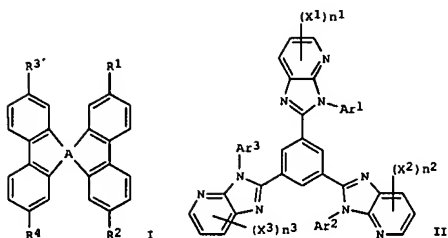
IT 189363-47-1  
 RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)  
 (hole-transporting layer; fabrication of light-emitting devices containing mixed layer lowering energy barriers at interfaces between organic layers and containing spiro-TAD)  
 RN 189363-47-1 CAPLUS  
 CN 9,9'-Spiro[bi[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N'',N''',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)

L10 ANSWER 26 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN  
 AB The authors demonstrate efficient organic electroluminescent devices with multiple well structure and a p-doped hole injection and transport layer (HTL). The multiple well structure improves the efficiency and the controlled p-doped HTL leads to a lower operating voltage. An amorphous starburst [4,4',4''-tris(N,N-diphenylamino)triphenylamine] doped with a strong organic acceptor, tetrafluoro-tetracyano-quinodimethane serves as the HTL material, a spiro-linked compound, 2,2',7',7''-tetrakis-(diphenylamine)-9,9'-spirobifluorene as an interlayer to provide a favorable interface and as a barrier within the multiple well structure and 8-tris-hydroxyquinoline as an emitter and well. The double-well device exhibits low operating voltage, <4 V, for obtaining 100 cd/m<sup>2</sup> and the highest current efficiency exceeding 5 cd/A. Changes in the spectra due to the different well structures are also discussed.  
 ACCESSION NUMBER: 2001:867197 CAPLUS  
 DOCUMENT NUMBER: 136:109747  
 TITLE: Low operating voltage and high efficiency organic multilayer electroluminescent devices with p-type doped hole injection layer  
 AUTHOR(S): Huang, Jingsong; Pfeiffer, Martin; Blochwitz, Jan; Werner, Ansgar; Salbeck, Josef; Liu, Shiyong; Leo, Karl  
 CORPORATE SOURCE: Institut für Angewandte Photophysik, Technische Universität Dresden, Dresden, D-01062, Germany  
 SOURCE: Japanese Journal of Applied Physics, Part 1: Regular Papers, Short Notes & Review Papers (2001), 40(11), 6630-6633  
 CODEN: JAPNDE  
 PUBLISHER: Japan Society of Applied Physics  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE

L10 ANSWER 25 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN (Continued)



L10 ANSWER 27 OF 44 CAPLUS COPYRIGHT 2005 ACS ON STN  
 GI



AB The invention refers to an organic electroluminescent component comprising I  
 [R1-4 = substituents: A =  $\geq 2$  C atoms,  $\geq 1$  carbon substituted with non-carbon atoms or form a biphenyl derivative] as a hole transport luminescent layer, and II [Ar1-3 = aryl or aromatic heterocycle;  
 X1-3 = substituents: n1-3 = 0 - 3] as an electron transport layer.  
 ACCESSION NUMBER: 2001:847757 CAPLUS  
 DOCUMENT NUMBER: 135:378557  
 TITLE: Organic electroluminescent component  
 INVENTOR(S): Ishii, Masahiko; Tokito, Seiji; Noda, Hiroshi; Taga, Yasunori; Okada, Masashi; Kimura, Makoto; Sawaki, Yasuhiko  
 PATENT ASSIGNEE(S): Toyota Central Research and Development Laboratories, Inc., Japan; Fuji Photo Film Co., Ltd.  
 SOURCE: Jpn. Kokai Tokkyo Koho, 2218 pp.  
 CODEN: JOKXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001326079	A2	20011122	JP 2000-145774	20000517
PRIORITY APPLN. INFO.: JP 2000-145774 20000517				

OTHER SOURCE(S): MARPAT 135:378557  
 IT 261517-63-9P 267884-20-8P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (organic electroluminescent component)  
 RN 261517-63-9 CAPLUS

(OLEDs) using novel hole-transporting emissive materials with triphenylamine moiety. The novel emissive materials have a high glass transition temperature ranging from 141–152°, which is attributed to nonplanar mol. structure. The OLEDs consist of an emitting layer of the novel emissive material and an electron-transport layer of tris(8-quinolinato) Al (Alq3). Emission colors of the OLEDs were bluish-green and greenish-yellow. High external quantum efficiency of 1.24 was obtained at a current density of 300 A/cm<sup>2</sup>. A good durability in a 1000 h operation at 2000 temperature and high currents was achieved.

observing the  
I-V, EL-V and the spectral characteristics of various devices stored at  
elevated temperature ( $130^{\circ}$ ). Blue multilayer organic light emitting  
diodes (OLEDs) containing PEDOT (polyethylenedioxythiophene) or PANI  
(polyaniline) device, as the hole injection and buffer layer, aromatic  
diamines like Spiro-TAD (2,2',7',7'-tetrakis(diphenylamino)spiro-9,9'-  
bifluorene) as a hole transport material (HTM), Spiro-DPVB1  
(2,2',7',7'-tetrakis(2,2-diphenylvinyl)spiro-9,9'-bifluorene) as an  
emitting material (EM) and of Alq3 (tris(8-hydroxyquinolinolato)aluminum)  
as the electron-injection and electron-transport layer (ETL) were  
fabricated.  
While OLEDs were prepared, containing an addnl. DCM  
(dicyanmethylen-2-methyl-6-  
(p-dimethylaminostyryl)-4H-pyran) doped Alq3 layer between the  
Spiro-DPVB1  
and Alq3 layer. Use of Spiro-TAD as a hole transport material (HTM) and  
of Spiro-DPVB1 as an emitting material (EM) resulted in dramatically  
improved temperature stability: for the white and blue OLED no  
significant  
degradation up to  $130^{\circ}$  were found. Devices consisting of non  
spiro components like MPB and/or DPVB1 already started to degrade at mu  
lower temps.

ACCESSION NUMBER: 2001:400127 CAPLUS  
DOCUMENT NUMBER: 135:187082  
TITLE: White and blue temperature stable and efficient OLEDs using amorphous spiro transport and spiro emitting compounds  
AUTHOR(S): Spreitzer, Hubert; Vestweber, Horst; Stoessel, Philipp; Becker, Heinrich  
CORPORATE SOURCE: Covion Organic Semiconductors GmbH, Frankfurt, D-65926, Germany  
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2001), 4105(Organic Light-Emitting Materials and Devices IV), 125-133  
CODEN: PSISDG; ISSN: 0277-786X  
PUBLISHER: SPIE-The International Society for Optical Engineering  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 189363-47-1, 2,2',7,7'-Tetrakis(diphenylamino)spiro-9,9'-bifluorene  
RL: DEV (Device component use); USES (Uses)  
(white and blue temperature stable and efficient LEDs using amorphous transport material)  
RN 189363-47-1 CAPLUS  
CN 9,9'-Spiro[9H-fluorene]-2,2',7,7'-tetramine,  
N,N,N',N',N'',N'',N''',N'''',N''''  
octaphenyl- (9CI) [CA INDEX NAME]

### FORMAT

AB The introduction of a spiro center between 2 charge transport material (CTM) moieties strongly improves the thermal stability of the amorphous state, without significantly changing its charge-transport properties. The observed decrease in the hole-mobility is of the same magnitude as

that arising from changes in film morphol. due to variation of the evaporation conditions or the presence of trace impurities. Conferring higher thermal stability on the amorphous state by modification of the chemical structure of the CTM is superior to the classical approach where the amorphous state is

stabilized by blending the CTM into a polymer matrix, e.g., polycarbonate, which is usually accompanied by a mobility drop of > 1 order of magnitude). In contrast spiro CTMs combine the high morphol. stability with commonly only observed in polymeric systems with the high charge mobility of low-mol.-weight CTMs.

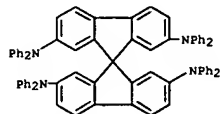
ACCESSION NUMBER: 2000:595125 CAPLUS  
DOCUMENT NUMBER: 133:309625  
TITLE: Characterization of hole transport in a new class of spiro-linked oligotriphenylamine compounds  
AUTHOR(S): Bach, Udo; De Cloedt, Kenny; Spreitzer, Hubert; Gratzel, Michael  
CORPORATE SOURCE: Institute of Photonics and Interfaces, Swiss Federal Institute of Technology, Lausanne, CH-1015, Switz.  
SOURCE: Advanced Materials (Weinheim, Germany) (2000), 12(14), 1060-1063

CODEN: ADVMEW; ISSN: 0935-9648  
PUBLISHER: Wiley-VCH Verlag GmbH  
DOCUMENT TYPE: Journal  
LANGUAGE: English

IT 189363-47-1  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(Characterization of hole transport in spiro-linked oligotriphenylamine compds.)

RN 189363-47-1 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
N,N,N',N',N'',N''',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

AB The temperature stability of OLEDs was studied by observing the I-V and EL-V characteristics of various devices stored at elevated temperature (up to 140°). Results reported in this paper concern the standard KODAK structure for a green OLED (i.e. anode/CuPc/NPB/AlQ3/cathode), the standard

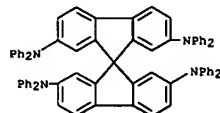
IDEMITSU structure for a blue OLED (i.e. anode/CuPc/NPB/DPVBI/AlQ3/cathode) and variants of those using high Tg materials consisting of a spiro-bifluorene core. Use of Spiro-TAD as a hole transport material (HTM) and of Spiro-DPVBI as an emitting material (EM) resulted in considerable improvements. While the initial performance of the virgin devices is considerably unchanged, the temperature stability increases dramatically: for the green OLED no significant deterioration up to 140° is found, compared to the standard device including NPB already starting to degrade slightly >100°; the blue OLED is stable up to approx. 120° (particularly the color coordinates of the emitted light) whereas the standard device using DPVBI already deteriorates at approx. 80°.

ACCESSION NUMBER: 2000:462272 CAPLUS  
DOCUMENT NUMBER: 133:258976  
TITLE: Temperature stability of OLEDs using amorphous compounds with spiro-bifluorene core  
AUTHOR(S): Spreitzer, Hubert; Schenk, Hermann W.; Salbeck, Josef; Weisssoertel, Frank; Reil, Heike; Riess, Walter  
CORPORATE SOURCE: Ind. Park Hochst, Covion Organic Semiconductors, Frankfurt, Germany  
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1999), 3797(Organic Light-Emitting Materials and Devices III), 316-324  
CODEN: PSISDG; ISSN: 0277-786X  
PUBLISHER: SPIE-The International Society for Optical Engineering  
DOCUMENT TYPE: Journal  
LANGUAGE: English

IT 189363-47-1  
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)

(Temperature stability of OLEDs using amorphous compds. with spiro-bifluorene core)

RN 189363-47-1 CAPLUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
N,N,N',N',N'',N''',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB An organic EL element comprising an anode, a cathode, and 21 organic compound layers sandwiched between the anode and the cathode, wherein one of the organic compound layers comprises an organic compound represented by chemical formula I (A = C>1 group; R1-4 = diphenylamino, oxadiazol, triazol, etc.) specifically any of the chemical formulas II (R1-4 = H, alkyl, Ph, etc.), III (R1-4 = H, alkyl, alkoxy, etc.; R5-16 = substituent), IV (R1-4 = H, alkyl, alkoxy, etc.; R5-16 = substituent) and V (R1-4 = H, alkyl, alkoxy, etc.; R5-16 = substituent). By incorporating desired substituents as R1 to R4, the compound can be made to have one or more of a hole-transporting function, luminescent function, and electron-transporting function. Since the mol. is apt to be nonplanar because of its structure, the compound is less apt to crystallize and has a high oxide glass transition temperature. Therefore, when used in an organic EL element, the compound contributes to an improvement in element life.

ACCESSION NUMBER: 2000:335497 CAPLUS  
DOCUMENT NUMBER: 132:341271  
TITLE: Organic electroluminescent device  
INVENTOR(S): Tokito, Shizuo; Noda, Koji; Fujikawa, Hisayoshi; Ishii, Masahiko; Taga, Yasunori; Kimura, Makoto; Sawaki, Yasuhiko  
PATENT ASSIGNEE(S): Kabushiki Kaisha Toyota Chuo Kenkyusho, Japan  
SOURCE: PCT Int. Appl., 62 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000027946	A1	20000518	WO 1999-JP6290	19991111
W: JP, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 6416887	B1	20020709	US 2000-581544	20000711
PRIORITY APPL. INFO.:			JP 1998-321080	A 19981111
			JP 1999-65683	A 19990311
			WO 1999-JP6290	W 19991111

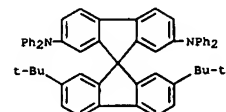
OTHER SOURCE(S): MARPAT 132:341271  
IT 267884-20-89  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);

AB The authors have studied the influence of hole transporting material on the electroluminescence characteristics in two-layer devices based on tris(8-quinolinolato) Al. Five hole transporting materials including two novel materials were used. No difference in turn-on voltages for light emission was seen in the devices fabricated on In-Sn-oxide treated by Ar/O plasma, and a high luminance of 10000 cd/m<sup>2</sup> was achieved at an operating voltage around 10 V. However, the photometric efficiency depended on the hole transporting material. High photometric efficiency of 6.1 cd/A and high luminous efficiency of 3.6 lm/W at a luminance of 300 cd/m<sup>2</sup> were obtained in one of the devices.

ACCESSION NUMBER: 2000:126914 CAPLUS  
DOCUMENT NUMBER: 132:285725  
TITLE: Influence of hole transporting material on device performance in organic light-emitting diode  
AUTHOR(S): Tokito, S.; Noda, K.; Shimada, K.; Inoue, S.-I.; Kimura, M.; Sawaki, Y.; Taga, Y.  
CORPORATE SOURCE: TOYOTA Central Research & Development Labs., Inc., Nagakute-cho, Aichi, Japan  
SOURCE: Thin Solid Films (2000), 363(1,2), 290-293  
CODEN: THSFAP; ISSN: 0040-6090  
PUBLISHER: Elsevier Science S.A.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
IT 244301-19-7 261517-63-9

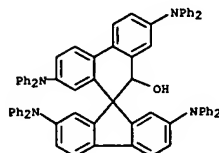
RL: DEV (Device component use); PRP (Properties); USES (Uses)  
(Influence of hole transporting material on device performance in organic light-emitting diode)

RN 244301-19-7 CAPLUS  
CN 9,9'-Spirobi(9H-fluorene)-2,7-diamine, 2',7'-bis(1,1-dimethylethyl)-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)

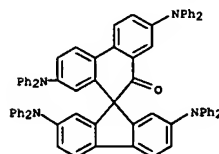


RN 261517-63-9 CAPLUS  
CN Spiro[9H-fluorene-9,9'-(10'H)-phenanthren]-10'-one, 2,2',7,7'-tetrakis(diphenylamino)- (9CI) (CA INDEX NAME)

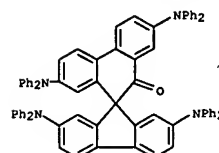
RACT (Reactant or reagent)  
(org. electroluminescent element)  
RN 267884-20-8 CAPLUS  
CN Spiro[9H-fluorene-9,9'-(10'H)-phenanthren]-10'-ol, 2,2',7,7'-tetrakis(diphenylamino)- (9CI) (CA INDEX NAME)



IT 261517-63-99  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material)  
use); PREP (Preparation); USES (Uses)  
(organic electroluminescent element)  
RN 261517-63-9 CAPLUS  
CN Spiro[9H-fluorene-9,9'-(10'H)-phenanthren]-10'-one, 2,2',7,7'-tetrakis(diphenylamino)- (9CI) (CA INDEX NAME)

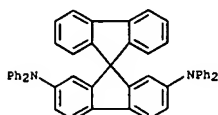


REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

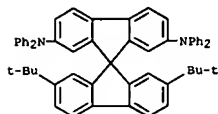


REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
FORMAT

L10 ANSWER 34 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB For multi-color organic electroluminescent (EL) devices, new triphenylamine compds. attached to a spirocyclic framework were prepared from 2,7-bis(diphenylamino)-9-fluorenone. These amines showed exceedingly high TC's or thermal stability as well as good electrochem. properties and sufficient EL characteristics, allowing practical application.  
 ACCESSION NUMBER: 2000:108507 CAPLUS  
 DOCUMENT NUMBER: 132:229211  
 TITLE: Spirocyclic-incorporated triphenylamine derivatives as an advanced organic electroluminescent material  
 AUTHOR(S): Kimura, Makoto; Inoue, Shin-ichiro; Shimada, Kou; Tokito, Shizuo; Noda, Koji; Taga, Yasunori; Sawaki, Yasuhiko  
 CORPORATE SOURCE: Department of Applied Chemistry, Graduate School of Engineering, Nagoya University, Nagoya, 464-8603, Japan  
 SOURCE: Chemistry Letters (2000), (2), 192-193  
 CODEN: CMLTAG; ISSN: 0366-7022  
 PUBLISHER: Chemical Society of Japan  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 IT 244301-18-6P 244301-19-7P 261517-63-9P  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (spirocyclic-incorporated triphenylamine derivs. as advanced organic electroluminescent material)  
 RN 244301-18-6 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



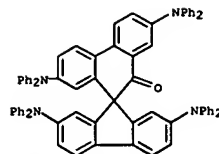
RN 244301-19-7 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, 2',7'-bis(1,1-dimethylethyl)-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



RN 261517-63-9 CAPLUS  
 CN Spiro[9H-fluorene-9,9'(10'H)-phenanthren]-10'-one, 2,2',7,7'-tetrakis(diphenylamino)- (9CI) (CA INDEX NAME)

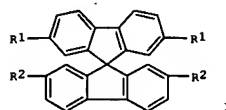
L10 ANSWER 35 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
 AB Direct white light emission from organic LEDs with high-temperature stability using spiro-linked low mol. weight structures was demonstrated. The thermal stability was characterized. The emission spectra were optimized to achieve ideal white light.  
 ACCESSION NUMBER: 2000:62778 CAPLUS  
 DOCUMENT NUMBER: 132:129772  
 TITLE: White light emission from organic LEDs utilizing spiro compounds with high-temperature stability  
 AUTHOR(S): Steuber, Frank; Staudigel, Jorg; Stosel, Matthias; Simmerer, Jorgen; Winnacker, Albrecht; Spreitzer, Hubert; Weissortel, Frank; Salbeck, Josef  
 CORPORATE SOURCE: Siemens A.-G., Erlangen, D-91052, Germany  
 SOURCE: Advanced Materials (Weinheim, Germany) (2000), 12(2), 130-133  
 CODEN: ADVMEW; ISSN: 0935-9648  
 PUBLISHER: Wiley-VCH Verlag GmbH  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS  
 FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

L10 ANSWER 34 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)



REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS  
 FORMAT RECORD. ALL CITATIONS AVAILABLE IN THE RE

L10 ANSWER 36 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN  
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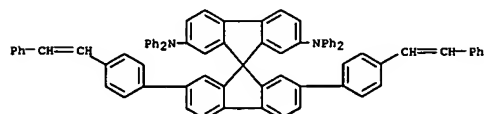


AB The invention relates to an organic electroluminescent device, wherein 21 organic layers comprise an asym. spiro compound having a fluorene-skeleton, represented by 1 [R1,2 = dissimilar groups selected from H, alkyl, Ph, diarylamino, etc.], for improving the heat resistant properties of the device.

ACCESSION NUMBER: 1999:638518 CAPLUS  
 DOCUMENT NUMBER: 131:250226  
 TITLE: Organic electroluminescent device comprising spiro compound with fluorene-skeleton  
 INVENTOR(S): Tokito, Seishi; Taka, Yasunori; Sawaki, Yasuhiko; Kimura, Makoto; Inoue, Shinichiro  
 PATENT ASSIGNEE(S): Toyota Central Research and Development Laboratories, Inc., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11273863	A2	19991008	JP 1998-77456	19980325
PRIORITY APPLN. INFO.:			JP 1998-77456	19980325

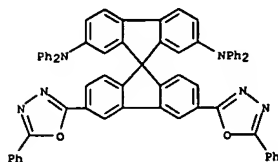
OTHER SOURCE(S): MARPAT 131:250226  
 IT 244301-15-3 244301-17-5 244301-18-6  
 244301-19-7  
 RL: DEV (Device component use); USES (Uses)  
 (organic electroluminescent device comprising spiro compound with fluorene-skeleton)  
 RN 244301-15-3 CAPLUS  
 CN 9,9'-Spirobi[9H-fluorene]-2,7-diamine, N,N,N',N'-tetraphenyl-2',7'-bis[4-(2-phenylethenyl)phenyl]- (9CI) (CA INDEX NAME)



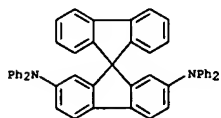


L10 ANSWER 36 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

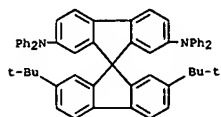
RN 244301-17-5 CAPLUS  
CN 9,9'-Spiro[9H-fluorene]-2,7-diamine, N,N,N',N'-tetraphenyl-3',6'-bis(5-phenyl-1,3,4-oxadiazol-2-yl)- (9CI) (CA INDEX NAME)



RN 244301-18-6 CAPLUS  
CN 9,9'-Spiro[9H-fluorene]-2,7-diamine, N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



RN 244301-19-7 CAPLUS  
CN 9,9'-Spiro[9H-fluorene]-2,7-diamine, 2',7'-bis(1,1-dimethylethyl)-N,N,N',N'-tetraphenyl- (9CI) (CA INDEX NAME)



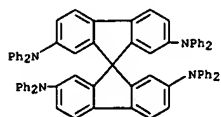
L10 ANSWER 37 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN (Continued)

OTHER SOURCE(S): MARPAT 131:206768

IT 189363-47-1P

RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses) (hole-conducting materials based on; photodetectors and their use in anal. and optical recording)

RN 189363-47-1 CAPLUS  
CN 9,9'-Spiro[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



L10 ANSWER 37 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN

AB Apparatus for detecting and determining the intensity of electromagnetic radiation is

described which comprises a photoactive layer consisting of a (preferably nanocryst.) semiconductor with a band gap of >2.5 eV; a dye which is applied to the semiconductor; a charge transfer layer containing a hole-conducting material. The semiconductor may be a metal oxide, preferably a titanium oxide containing material. The dye may be a metal complex, especially a complex of Ru, Rh, or Os. The hole-conducting

material preferably comprises 21 spiro compound, particularly a derivative of 9,9'-spirobifluorene. Use of the devices for the detection of electromagnetic radiation, preferably visible radiation, is also described. The devices may be employed for analyses using the detection of fluorescence, phosphorescence, changes in absorption, scintillation, and chemiluminescence. The detectors may also be used for detection or determination of specific materials or properties (e.g., temperature, pressure, pH, or redox potential). Selective chemical anal. systems using the detectors

in conjunction with a mol. detection system which can be read using electromagnetic radiation, and a light source as appropriate, are also described for application to environmental, biomol., or diagnostic anal. (especially immunodiagnostic, genetic, or combinatorial anal. systems) are also

described. Apparatus for writing and reading out data is described which employs an array of the detectors. Methods for fabricating the detectors entail sequential formation of the layers.

ACCESSION NUMBER: 1999:577139 CAPLUS

DOCUMENT NUMBER: 131:206768

TITLE: Photodetector and use of the same

INVENTOR(S): Windhab, Norbert; Hoppe, Hans-urlich; Lupo, Donald

PATENT ASSIGNEE(S): Aventis Research and Technologies GmbH and Co. KG, Germany

SOURCE: PCT Int. Appl., 78 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9945595	A2	19990910	WO 1999-EP1206	19990225
WO 9945595	A3	19991223		
W: AU, BR, CA, JP, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19808936	A1	19990916	DE 1998-19808936	19980303
CA 2322458	AA	19990910	CA 1999-2322458	19990225
AU 9930301	A1	19990920	AU 1999-30301	19990225
AU 757033	B2	20030130		
BR 9909240	A	20001114	BR 1999-9240	19990225
EP 1060523	A2	20001220	EP 1999-911706	19990225
R: AT, BE, CH, FR, GB, LI, NL, SE				
JP 2002306290	T2	20020226	JP 2000-535052	19990225
US 6664071	B1	20031216	US 2000-622956	20000926
PRIORITY APPL. INFO.:			DE 1998-19808936	A 19980303
			WO 1999-EP1206	W 19990225

L10 ANSWER 38 OF 44 CAPLUS COPYRIGHT 2005 ACS on STN

AB The title process comprises amination of aroms. in the presence of a base,

a Pd component (sic) and a phosphine ligand. Thus, 2,2',7,7'-tetrabromo-9,9'-spirobifluorene was refluxed with Ph2NH in PhMe containing Pd(OAc)2 and P(C6H4Me-2)3 to give 36% 2,2',7,7'-tetrakis(diphenylamino)-9,9'-spirobifluorene.

ACCESSION NUMBER: 1999:181677 CAPLUS

DOCUMENT NUMBER: 130:223056

TITLE: Preparation of aromatic polyamines

INVENTOR(S): Spreitzer, Hubert; Kreuder, Willi; Becker, Heinrich;

Neumann, Ute

PATENT ASSIGNEE(S): Hoechst A.-G., Germany

SOURCE: Ger. Offen., 8 pp.

CODEN: GWOXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

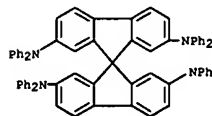
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19738860	A1	19990311	DE 1997-19738860	19970905
WO 9912888	A1	19990318	WO 1998-EP5398	19980826
W: JP, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 1009731	A1	20000621	EP 1998-946429	19980826
R: DE, FR, GB, NL				
JP 2001515879	T2	20010925	JP 2000-510701	19980826
US 6476265	B1	20021105	US 2000-486867	20000510
PRIORITY APPL. INFO.:			DE 1997-19738860	A 19970905
			WO 1998-EP5398	W 19980826

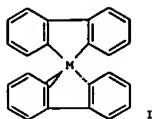
OTHER SOURCE(S): CASREACT 130:223056; MARPAT 130:223056

IT 189363-47-1P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation) (preparation of aromatic polyamines)

RN 189363-47-1 CAPLUS  
CN 9,9'-Spiro[9H-fluorene]-2,2',7,7'-tetramine, N,N,N',N',N'',N'',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)





AB The compound is a reversibly oxidizable organic compound with a 1st oxidation potential between the ground state and 700 mV above the ground state. The compound is a spiro or heterospiro compound such as a spirofluorene derivative I, where M is C, Si, Ge, or Sn and where the benzo groups are independently substituted and/or annelated.

ACCESSION NUMBER: 1998:685150 CAPIUS  
DOCUMENT NUMBER: 129:278462  
TITLE: Photovoltaic cell with electrolyte redox system of hole-conducting compound  
INVENTOR(S): Bach, Udo; Graetzel, Michael; Salbeck, Josef; Weissörtel, Frank; Lupo, Donald  
PATENT ASSIGNEE(S): Hoechst A.-G., Germany  
SOURCE: Ger. Offen., 46 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19711713	A1	19981001	DE 1997-19711713	19970320
JP 2001525108	T2	20011204	JP 1998-544843	19980318
US 6335480	B1	20020101	US 1999-381192	19991124
PRIORITY APPLN. INFO.:			DE 1997-19711713	A 19970320
			WO 1998-EP1558	W 19980318

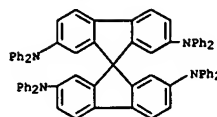
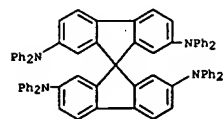
OTHER SOURCE(S): MURPAT 129:278462  
IT 189363-47-1P  
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(hole-conducting compound for electrolyte redox system of photovoltaic cell)  
RN 189363-47-1 CAPIUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
N,N,N',N',N'',N'',N''',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)

L10 ANSWER 40 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN  
AB Detectors for short wavelength electromagnetic radiation (e.g., UV and x-ray radiation) are described which employ charge transfer layers incorporating hole-conducting materials. The hole-conducting materials are preferably amorphous solids, especially spiro compds. such as spirofluorene derivs.

ACCESSION NUMBER: 1998:314587 CAPIUS  
DOCUMENT NUMBER: 129:21312  
TITLE: Radiation detector  
INVENTOR(S): Salbeck, Josef; Graetzel, Michael  
PATENT ASSIGNEE(S): Hoechst A.-G., Germany  
SOURCE: Ger. Offen., 20 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19646411	A1	19980514	DE 1996-19646411	19961111
WO 9821764	A1	19980522	WO 1997-EP6050	19971103
W: JP, US				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,				
SE				
EP 947006	A1	19991006	EP 1997-948860	19971103
EP 947006	B1	20030903		
R: CH, DE, FR, GB, IT, LI				
JP 2001503570	T2	20010313	JP 1998-522108	19971103
PRIORITY APPLN. INFO.:			DE 1996-19646411	A 19961111
			WO 1997-EP6050	W 19971103

OTHER SOURCE(S): MURPAT 129:21312  
IT 189363-47-1P  
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(radiation detectors with charge transfer layers incorporating hole-conducting materials)  
RN 189363-47-1 CAPIUS  
CN 9,9'-Spirobi[9H-fluorene]-2,2',7,7'-tetramine,  
N,N,N',N',N'',N'',N''',N''',N''''-octaphenyl- (9CI) (CA INDEX NAME)



L10 ANSWER 41 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN  
AB An electroluminescent device whose electroluminescence spectrum does not overlap with the absorption spectrum, containing  $\geq 2$  organic layers between 2 electrodes, is characterized by: (a) 2 adjacent organic layers, each having an optical band gap of  $\geq 2.5$  eV; and (b) the wavelength ( $\lambda_{\text{max}}$ , corresponding to an energy  $E_{\text{max}}$ ) at which the electroluminescence has a maximum is in a region corresponding to the energy difference  $\Delta E$  (ionization potential of the 1st organic layer minus electron affinity of the 2nd organic layer), and  $E_{\text{max}} \leq 2.5$  eV.

ACCESSION NUMBER: 1998:314575 CAPIUS  
DOCUMENT NUMBER: 129:21311  
TITLE: Electroluminescent device  
INVENTOR(S): Spreitzer, Hubert; Lupo, Donald; Schenk, Hermann; Yu, Nu  
PATENT ASSIGNEE(S): Hoechst A.-G., Germany  
SOURCE: Ger. Offen., 10 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19646119	A1	19980514	DE 1996-19646119	19961108
WO 9821758	A2	19980522	WO 1997-EP6004	19971030
WO 9821758	A3	19980702		
W: CA, CN, JP, KR, MX				
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,				
SE				
EP 946995	A2	19991006	EP 1997-950052	19971030
R: DE, FR, GB, NL				
CN 1236486	A	19991124	CN 1997-199548	19971030
JP 2001504629	T2	20010403	JP 1998-522103	19971030
KR 2000053102	A	20000825	KR 1999-704026	19990506
PRIORITY APPLN. INFO.:			DE 1996-19646119	A 19961108
			WO 1997-EP6004	W 19971030

L10 ANSWER 42 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN  
 AB Spiro-linkage is used to modify the steric demand of low mol. organic compds. to improve their processability and morphol. stability, while their electronic properties are retained. These spiro-linked compds. form stable nonpolymeric organic glasses with high glass transition temps., usually associated with amorphous polymers. High quality amorphous films with high morphol. stability can be prepared with these spiro-linked luminescent or charge transport materials by conventional spin-coating techniques as well as by vapor deposition. Based on these spiro-compds., blue electroluminescence devices with high color purity, high brightness and low turn-on voltage are presented. A blue light-emitting two-layer device, fabricated by combining a hole transporting spiro-TAD with an electron transporting spiro-PBD, shows a turn-on voltage at 2.7 V and a luminance of 500 cd/m<sup>2</sup> at 5 V.

ACCESSION NUMBER: 1998:57733 CAPIUS  
 DOCUMENT NUMBER: 128:210265  
 TITLE: Low molecular organic glasses for blue electroluminescence  
 AUTHOR(S): Salbeck, J.; Yu, N.; Bauer, J.; Weissortel, F.; Bestgen, H.  
 CORPORATE SOURCE: Ackermannweg 10, Max-Planck-Institute for Polymer Research, D-55128, Mainz, Germany  
 SOURCE: Synthetic Metals (1997), 91(1-3), 209-215  
 CODEN: SYMEDZ; ISSN: 0379-6779  
 PUBLISHER: Elsevier Science S.A.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE  
 FORMAT

L10 ANSWER 43 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN  
 AB Spiro-linkage of low-mol.-weight entities as a new structural concept for the design of new active materials for electroluminescent applications is presented. These spiro-linked compds. result in nonpolymeric organic glasses with high thermal stability as can be derived from their high glass transition temps. (T<sub>g</sub>), and characterized by DSC. Blue emitters based on spiro-linked oligophenyls are presented. These compds. are soluble in common organic solvents and show high photoluminescence quantum efficiency in the solid state and high morphol. stability with glass transition temps. >230°. Charge transport materials based on spiro-linked versions of 2-(4-biphenyl)-5-(4-tert-butylphenyl)-1,3,4-oxadiazole (PBD) for electron transport, and spiro-linked versions of triphenyldiamine derivs. (TPD) for hole transport show improved morphol. properties with nearly unchanged electronic properties compared to the parent compds. High quality amorphous films can be prepared with the spiro compds. by vapor deposition as well as by simple spin coating.

ACCESSION NUMBER: 1997:760087 CAPIUS  
 DOCUMENT NUMBER: 128:41356  
 TITLE: Spiro-linked compounds for use as active materials in organic light emitting diodes  
 AUTHOR(S): Salbeck, Josef; Weissortel, Frank; Bauer, Jacqueline  
 CORPORATE SOURCE: Max-Planck-Inst. Polymer Research, Mainz, D-55128, Germany  
 SOURCE: Macromolecular Symposia (1998), 125(Organic Light-Emitting Materials and Devices), 121-132  
 CODEN: MSYMEC; ISSN: 1022-1360  
 PUBLISHER: Huethig & Wepf Verlag  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

L10 ANSWER 44 OF 44 CAPIUS COPYRIGHT 2005 ACS on STN  
 AB Spiro-linked materials were synthesized and investigated. Blue-emitting luminescent materials comprising sym. spiro-linked oligo-phenyls up to the deciphenyls were prepared. Materials with charge transport properties were also prepared. The materials form stable glasses with high glass transition temps. Amorphous films of the materials can be prepared by both spin-coating and vapor deposition processes, and application to LEDs is indicated.

ACCESSION NUMBER: 1997:224275 CAPIUS  
 DOCUMENT NUMBER: 126:322720  
 TITLE: Spiro linked compounds as active materials in organic light emitting diodes  
 AUTHOR(S): Salbeck, J.; Bauer, J.; Weissortel, F.  
 CORPORATE SOURCE: Corp. Res., Hoechst Ag, Mainz, D-55128, Germany  
 SOURCE: Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (1997), 38(1), 349-350  
 CODEN: ACPPAY; ISSN: 0032-3934  
 PUBLISHER: American Chemical Society, Division of Polymer Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

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                                ENTRY      SESSION
FULL ESTIMATED COST          398.45      884.80

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)  SINCE FILE      TOTAL
                                                ENTRY      SESSION
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 DICTIONARY FILE UPDATES: 13 FEB 2005 HIGHEST RN 830317-64-1

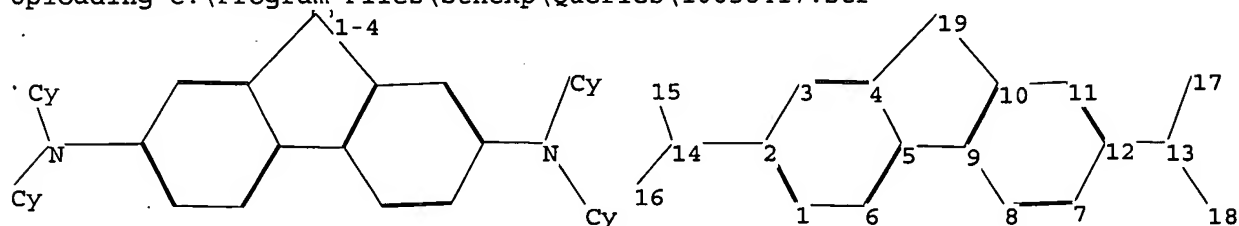
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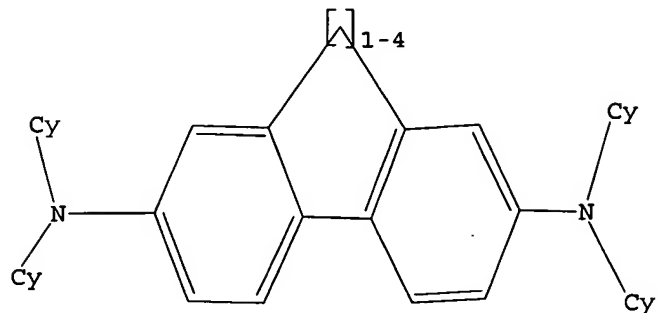
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ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12 19
chain bonds :
2-14 12-13 13-17 13-18 14-15 14-16
ring bonds :
1-2 1-6 2-3 3-4 4-5 4-19 5-6 5-9 7-8 7-12 8-9 9-10 10-11 10-19 11-12
exact/norm bonds :
2-14 4-19 5-9 10-19 12-13 13-17 13-18 14-15 14-16
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12
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Match level :  
 1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom  
 11:Atom 12:Atom 13:CLASS 14:CLASS 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom

L11        STRUCTURE UPLOADED

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L11                STR



Structure attributes must be viewed using STN Express query preparation.

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SAMPLE SEARCH INITIATED 17:36:35 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 14298 TO ITERATE

7.0% PROCESSED        1000 ITERATIONS  
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)  
SEARCH TIME: 00.00.01

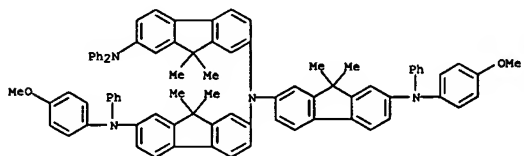
3 ANSWERS

FULL FILE PROJECTIONS:    ONLINE    \*\*COMPLETE\*\*  
                                      BATCH    \*\*COMPLETE\*\*  
PROJECTED ITERATIONS:            278799 TO    293121  
PROJECTED ANSWERS:                465 TO        1249

L12                3 SEA SSS SAM L11

=> d scan

L12 3 ANSWERS REGISTRY COPYRIGHT 2005 ACS on STN  
 IN 9H-Fluorene-2,7-diamine, N-[7-(diphenylamino)-9,9-dimethyl-9H-fluorene-2-yl]-N'-(4-methoxyphenyl)-N-[7-[(4-methoxyphenyl)phenylamino]-9,9-dimethyl-9H-fluorene-2-yl]-9,9-dimethyl-N'-phenyl- (9CI)  
 MF C83 H70 N4 O2

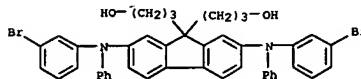


\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):2

L12 3 ANSWERS REGISTRY COPYRIGHT 2005 ACS on STN  
 IN 9H-Fluorene-9,9-dipropanol, 2,7-bis[3-(3-bromophenyl)phenylamino]-, polymer with 1,6-hexanediol and 1,1'-methylenebis[isocyanatobenzene] (9CI)  
 MF C43 H38 Br2 N2 O2 . C15 H10 N2 O2 . C6 H14 O2)x  
 CI PMS

CM 1



CM 2



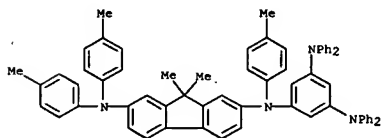
1/2 [ D1-CH2-D1 ]

D1-NCO

CM 3

HO-(CH2)6-OH

L12 3 ANSWERS REGISTRY COPYRIGHT 2005 ACS on STN  
 IN 1,3,5-Benzenetriamine, N-{7-[bis(4-methylphenyl)amino]-9,9-dimethyl-9H-fluorene-2-yl]-N-(4-methylphenyl)-N',N',N',N'-tetraphenyl- (9CI)  
 MF C66 H56 N4



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ALL ANSWERS HAVE BEEN SCANNED

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